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The Bulletin *has the honour to publish herewith the main features of reports forwarded by the Representatives of Canada and of the United States of America on the Commission on Narcotic Drugs, which, it was felt, would be of interest to its readers.*

Canada's Senate Committee on the traffic in narcotic drugs

by Kenneth C. Hossiek,
Director, Division of Narcotic Control, Department of National Health and Welfare, Ottawa, and Canadian Representative, United Nations Commission on Narcotic Drugs.

In Canada, as in many other countries, a post-war rise in crime and juvenile deliquency caused a good deal of concern to the public and the governing bodies. One component of the so-called crime wave was an increase in the convictions for offences involving narcotics. Two aspects of the problem were of special significance, that is, the possibility of young people being involved, and the actual relationship of the illicit traffic in narcotics to the crime waves.

Public discussions of the problem in the press and elsewhere were characterized by urgent requests for action on the one hand, and by a lack of accurate knowledge of drug addiction and its implications, on the other.

The national government of Canada had been giving serious consideration to the problem for some time, particularly through its technical advisers in the Department of National Health and Welfare and in the Royal Canadian Mounted Police. In the session immediately preceding appointment of the Senate Committee, the Government had introduced amendments to the Opium and Narcotic Drug Act designed to facilitate enforcement and administration generally, and particularly to increase penalties. These government measures received prompt approval.

However, it was realized that the problem of drug addiction was a complex one from constitutional, legal, administrative and enforcement aspects, and in February 1955 a Special Committee of the Senate of Canada's Parliament was appointed " to enquire into and report upon the traffic in narcotic drugs in Canada and problems related thereto ".

The membership of the Committee included representatives of all provinces and some doctors and lawyers with experience with drug addicts. The fact that the Chairman, the Honourable Senator Thomas Reid, was a representative of British Columbia, where the drug problem was considered to be most acute, possibly served as a stimulus to proceedings of the Committee. Senator Reid had previously, as a Member of Parliament in the House of Commons, been Parliamentary Assistant to the Minister of National Health and Welfare and so already had some familiarity with departmental administration of the Opium and Narcotic Drug Act.

The Senate Committee was empowered " to send for persons, papers, and records " and the Honourable Paul Martin, Minister of the Department of National Health and Welfare, in his opening remarks to the Committee emphasized that all officers of his Department were at the disposal of the Committee.

In view of the wide interest in this problem it was particularly valuable to have the Senate invite the public to submit briefs, and many organizations took the opportunity to present their views. These included representatives of prisoners aid groups (which in Canada are called Elizabeth Fry and John Howard societies) and spokesmen for the Salvation Army, the United Church of Canada, and other religious and welfare agencies.

This Senate Committee established a precedent in that it also met outside of Ottawa (the national capital); public hearings were held in all the major addiction centres, Canada's larger cities, Montreal, Toronto and Vancouver. In their endeavour to get as complete and accurate information as possible and to have all points of view represented, the Committee took the unusual step of having drug addicts appear as witnesses, *in camera*.

Although the Committee did not travel outside of Canada, it did consider legislation and other information respecting drug addiction and narcotic control in the United States, in the United Kingdom, and in France. The Committee considered itself particularly fortunate to have Dr. Harris Isbell, of the United States Public Health Service, come to Ottawa to give members the benefit of United States experience and to answer detailed questions respecting research and treatment procedures. The Senators also were specially interested in the testimony of Mr. John H. Walker, United Kingdom Delegate to the United Nations Narcotic Commission, who made clear the narcotic control procedures in his country, as well as giving a general picture of the extent of drug addiction there. The members of the Committee also had the benefit of an outline of the French legislation on narcotic drugs, prepared by Mr. Charles Vaille, Representative of France on the United Nations Narcotic Commission.

Notwithstanding the comprehensive nature of its investigation, the Senate Committee operated with commendable despatch; it was appointed 24 February 1955, and presented its report four months later on 25 June. The proceedings, which were recorded in full, amounted to 650 pages and made available in Canada extensive information and data about narcotic traffic and drug addiction. This included detailed statements regarding administration and enforcement of the Opium and Narcotic Drug Act as presented by responsible officials in the Division of Narcotic Control of the Department of National Health and Welfare, and of the Royal Canadian Mounted Police, respectively.

The way in which international study and agreements provide an authoritative basis for local action is exemplified by the fact that the Senate Committee, for the purposes of its enquiry, decided to adopt the definition of drug addiction approved by the World Health Organization of the United Nations. In doing so, it recognized the basic characteristics of drug addiction as the compulsion to continue taking the drug, the tendency to increase the dose, and the psychological dependence on the drug.

The Committee noted that " Canada has played an important role in international control and is a signatory to all international conventions designed to limit to medical and scientific uses narcotic substances ". The Committee also concurred with the statement of the Minister of National Health and Welfare that " the Canadian legislation is as realistic and effective as the legislation of any country ". Incidentally, the prohibition of heroin came into effect in Canada on 1 January 1955, a further evidence of our conformity with international agreements.

It was made clear to the Senate Committee that the illicit traffic, particularly smuggling across the United States-Canada border, was the major factor in the narcotic situation in this country. Some appreciation was gained of the complexity of the attempt to control the illicit distribution in a country with 3,000 miles of land border and ports on two oceans, particularly in view of the enormous profit associated with the traffic, and the comparative ease with which considerable quantities of drugs can be concealed for transportation and distribution.

The Committee reviewed the relevant narcotic legislation and acquainted itself with details of the administration and enforcement of the Act. The Committee reported itself as " favourably impressed with the efficiency of the administration of the Opium and Narcotic Drug Act by the Division of Narcotic Control of the Department of National Health and Welfare ". The Committee also paid tribute to the Royal Canadian Mounted Police for the efficient manner in which they assisted in the enforcement of the Act.

The extent of addiction in Canada amounted to an estimated population of 3,212 addicts of which 2,364 were classified as " criminal addicts ". The remainder were considered to be medical addicts (515) and professional addicts (333). Information was provided respecting the characteristics of the addicts with reference to their age, sex, and their criminal and delinquency records. It was suggested that in general the addicts had a delinquency or criminal record before becoming addicts. The Committee was satisfied that there was no teen-age addiction problem in Canada.

The Committee noted that marihuana is rarely found in Canada. The matter of the use of barbiturates was considered and the Committee was of the opinion that the present strict control of the barbiturates under the Food and Drug administration should be continued and that a careful watch should be kept on the use of these drugs.

The Committee noted that co-operation was general among the police forces involved, the Royal Canadian Mounted Police, and the provincial and municipal forces. It was, however, not impressed with local measures of the police in the city of Vancouver where addicts recently have tended to congregate.

A variety of proposals for dealing with the drug problem was presented to the Committee. These covered the range from the suggested compulsory permanent incarceration of, or death penalty for traffickers, to the idea of providing drugs free, or at cost, to addicts. With respect to the much publicized proposal of narcotic clinics, the Committee heard considerable evidence with respect to narcotic clinics and ambulatory treatment. The vast preponderance of responsible evidence on this subject, both oral and written, led the Committee to conclude that the establishment of such clinics or the provision of any other legalized supply of drugs for the purpose merely of supporting addiction would be a retrograde step. In addition, the Committee was strongly of the opinion that the narcotic drug problem could not be solved by the creation of government clinics where addicts could obtain their supplies. The proposal designed to provide legal supplies of drugs to criminal addicts was, therefore, unanimously rejected, and the Committee was supported in this decision by evidence that the Narcotic Drug Commission of the United Nations, at its tenth session, had resolved that " In the treatment of drug addiction, methods of ambulatory treatment (including the so-called clinic method) are not advisable ".

In the face of considerable public discussion and advocacy of the so-called British system, the Committee gave special attention to this view but reported that " from the evidence it appears that there never has been a serious drug problem in the United Kingdom and that the situation there is not comparable with that of Canada ". Mr. Walker advised the Committee that the indiscriminate administration of narcotics to addicts is not now, and never has been, a feature of United Kingdom policy.

The Committee approved the educational programme developed by the Division of Narcotic Control for professional and special groups, such as medical and pharmaceutical associations, schools of nursing, and colleges of medicine and pharmacy. It was not, however, in favour of any general educational efforts which would arouse undue curiosity on the part of impressionable persons or those of tender years, but recommended rather " both the improvement and expansion of mental health programs in our schools " with a view to early detection and treatment of variations from acceptable behaviour.

The high quality of narcotic drug research carried on by the Department of National Health and Welfare was noted and it was suggested that Canada may become an international narcotic drug research centre for students from other countries. The Committee proposed that the Government consider the possibility of bursaries or scholarships for training of medical, probation and rehabilitation personnel. It was recommended also that the organization of Alcoholics Anonymous and Narcotic Anonymous groups should be encouraged. The Committee urged further the need for communities to make concerted efforts to eradicate conditions that breed drug addiction and expressed the view that church and welfare

groups, schools and hospitals, employers and the public generally would need to co-operate to support addicts in their efforts to adjust to life in an ordered society. The Committee was advised of a research project now under way at the University of British Columbia under the direction of Dr. George H. Stevenson.

In presenting its conclusions and recommendations, the Senate Committee pointed out that the solution of the drug addiction problem required elimination of addicts, the suppression of narcotic traffic, and the prevention of an increase of the addict population. The report points out that the solution is further complicated by the division of responsibility between federal and provincial governments. The Committee considered the suppression of the illicit traffic to be a federal responsibility and allocated to the provincial authorities the treatment of drug addiction as an illness. In this connexion it noted the lack of treatment facilities in Canada although there were some legislative provisions in certain provinces for this. The Committee was impressed by the contrast in the addiction situation in the cities of Montreal and Toronto compared to Vancouver. It was pointed out that the drug problem is confined essentially to the three provinces of Quebec, Ontario and British Columbia, particularly the latter. The Committee noted that the Minister of National Health and Welfare had advised the provincial governments that federal assistance was available and that a specific proposal had been made to the province of British Columbia with respect to a treatment centre.

The Committee made special comment regarding the evidence presented by Dr. Harris Isbell who is one of the world's foremost authorities on treatment facilities, and also referred to the evidence of Mr. H. J. Anslinger, Commission of Narcotics of the United States before a Special Committee of the United States Senate, respecting the relationship between heavy penalties and reduction in the drug problem, and wherein he pointed out that in areas where low sentences were imposed, the drug problem substantially increased, and in areas where there was strict enforcement with heavy sentences, the drug problem showed a commensurate decrease.

Finally, the Committee, in emphasizing the necessity for heavy sentences for traffickers, made the point that no distinction should be drawn between the addict-trafficker and the non-addict trafficker. Compulsory lengthy minimum sentences were advocated and the Committee also recommended for consideration amendments to the Juvenile Deliquency Act, to make association of an addict with a juvenile prima facie evidence of contributing to delinquency. In view of the reported difficulty in obtaining convictions for conspiracy, the Committee considered that some appropriate legislative changes should be made to facilitate this enforcement action. It was further proposed that driving privileges be withdrawn for long periods of time for those convicted under the trafficking sections of the Opium and Narcotic Drug Act.

Undoubtedly the recommendations of the Senate Committee and the comprehensive published record of relevant data, authoritative statements, and public opinion will be the basis of future progressive development of measures and programmes relating to narcotic control and drug addiction in Canada.

Report of the Interdepartmental Committee on Narcotics to the President of the United States

An interdepartmental Committee representing the Departments of State, Treasury, Defence, Justice and Health, Education & Welfare of the Government of the United States of America was appointed by the President of the United States on 27 November 1954. The terms of reference of the Committee were to make a comprehensive up to date survey on the extent of narcotic addiction, in order to define more clearly the scope of the problems and to promote effective co-operation among federal states and local agencies. Determination of what the states and local agencies had accomplished and what they were equipped to do in the field of law enforcement and in the rehabilitation of the victims was to be included. The Committee's report was designed to expedite systematic review and improvement of the narcotics programmes, local, national and international. The report was transmitted to the President on 1 February 1956.

The Committee's report stated that its method had been that of pooling the information and the experience gained by the agencies of the federal government most directly concerned and by other public and private authorities and investigators familiar with the problem in its manifold phases. From its study and review of the available material, it had endeavoured to arrive at an evaluation of the existing situation and to make recommendations looking towards a plan for integrated federal, state, and community action most likely to result in its improvement, within both the near and the more distant future.

The Committee believed that no important, informed point of view with respect to the character and dimensions of the problem, or method proposed for its alleviation, had been overlooked. The subject was one to which many, in private and public life, had given earnest thought. Numerous differing opinions had been advanced and complete unanimity never found on any single aspect of the problem except the chemical analyses of the drugs themselves.

A survey by the Bureau of Narcotics, covering the calendar years 1953 and 1954 on addicts reported by the various enforcement authorities and, to a limited extent, by the co-operating hospitals and medical services listed a total of 24,043 addicts reported during that period. Approximately 13% were under the age of 21; of this group, 3,145 (87.6%) were found to be 18 or over. This figure was significant as indicating that unofficial reports of a problem of serious dimensions among young people of school age had been exaggerations; the number in that age bracket, among the total of 24,043, was under 400. Additional names were reported during 1955, bringing the total number of addicts known to authorities to approximately 32,000. Preliminary analysis of these most recently reported cases indicated a still smaller proportion of those under the age of 21.

The Department of Defence had secured statistical data indicating a rate of addiction of less than three per 100,000 military personnel, or less than one-tenth the estimated rate for the civil population in the United States. A problem of some proportions was found to have existed in the Far East. A majority of these addicts were found to have been involved with narcotics prior to their entry into service. The rate of addiction found among military personnel in the Far East was in general similar to that estimated for the civilian population, for comparable age groups in the United States.

A Bureau of Narcotics analysis of arrests for violations of the various narcotics laws during 1954 showed 1,430 by federal, and 18,059 by local authorities. This indicated a drop of 17% from 1953, during which 1,774 federal and 21,853 local arrests were made. A special tabulation of cases involving persons under the age of 21 showed 58 federal and 2,078 local arrests in 1954, against 134 federal and 2,598 local arrests in 1953. It is encouraging to note that the greater decline —21.8%—was among the younger group.

In addition to formal studies and reports, the Committee had the benefit of numerous consultations with experts within the Departments concerned, and with others possessing substantial experience with the problems of addiction. This was of great value in the interpretation of the extensive literature on the subject.

The Committee was aware of the extremely informative testimony elicited by the Committees of both the Senate and House of Representatives, which had been currently conducting hearings on matters pertaining to narcotic drugs, had had the benefit of generous co-operation by their chairman, members, and staffs, and also the opportunity of reviewing the valuable preliminary report of 9 January 1956 on this subject of the Sub-committee on Improvements in the Federal Criminal Code of the Senate Judiciary Committee. Representatives had participated in a panel discussion on the subject conducted by the American Bar Association, and attended meetings of the Committee on Drug Addiction and Narcotics of the National Academy of Sciences and the National Research Council.

The studies conducted by state and municipal authorities, and by numerous private and civic groups, had been reviewed. The Committee had been in correspondence with the State and city agencies concerned with problems of prevention and treatment of drug addiction, and enforcement of the narcotics laws. It had been aided in this by the officers and Washington representatives of the Council of State Governments and the Conference of Mayors of the United States. Among the special studies undertaken on behalf of the Committee was the "Report on Drug Addiction" prepared by a committee of the New York Academy of Medicine. Advantage was taken of the opportunity to visit the Riverside Hospital in New York City, and to observe the special programme conducted there for the treatment and rehabilitation of juvenile addicts.

The Committee was impressed by the consistent support given to the federal authorities in charge of control of narcotic drugs by physicians and pharmacists, and by the manufacturers, importers and distributors in the drug field. Associations representing these groups had co-operated in assuring compliance with all regulatory measures, and made notable contributions to the effectiveness of the programme.

Drug controls in the United States

The Committee drew attention to the fact that general properties of narcotic drugs had been known for many centuries, the world over, and that as their use had become widespread and new drugs had been discovered, the danger to society had grown together with their usefulness.

Within the United States, narcotic drugs were used with considerable freedom throughout the nineteenth and early twentieth centuries. Addiction was relatively common, though not frequently recognized until after the Civil War, when its prevalence among veterans whose first acquaintance with narcotics had been in military service gave it for a time the name of " the soldiers' illness ". Narcotics were important ingredients in a number of proprietary medicines widely sold to the public, and were also prescribed by physicians far more freely than in contemporary practice.

Owing to these circumstances an unknown though certainly large number of persons became unwitting addicts; they continued the use of the drugs in one or more of the many forms then available. Many of these people must have had only slight understanding of the real nature of their involvement with and dependence upon the drugs.

There appeared meanwhile a considerable number of addicts who had resorted to narcotics for purely sensual gratification, and who obtained their supplies through unregulated purchase, without need for prescriptions. The resulting medical and social problems led to efforts, as long as eighty years ago, to estimate the number of persons affected and the quantities of drugs consumed. These early estimates were based upon sample reports from physicians and pharmacists, usually confined to relatively small areas or segments of the national population. The extrapolation of such locally established rates to the whole population produced widely differing total estimates, ranging upwards to the millions. Careful scrutiny of such early estimates and the methods by which they were reached suggested that they were of value chiefly as indications that a problem of considerable importance was already recognized.

The first truly national estimate of any statistical validity was made by Dr. Lawrence Kolb of the Public Health Service in 1923, at which time he found indications supporting the figure of 100,000.

By that date, however, narcotic drugs had already come under federal controls, and their manufacture, importation and distribution were subject to regulation. Certain of the states had already adopted restrictive and regulatory controls, and the problem had been modified to a considerable extent where effective local measures were enforced. The basic statute establishing federal controls was the Harrison Narcotic Law, enacted in 1914, and incorporated with its amendments in the Internal Revenue Code. The Narcotic Drugs Import and Export Act of 26 May 1922 further extended direct federal interest in and control over these drugs.

Enforcement of these laws was a responsibility of the Treasury Department. The Bureau of Narcotics, established in 1930, was charged with the duty of regulating, supervising, and controlling the trade in narcotic drugs, and served as the special administration which the United States became obligated to create for this purpose under Article 15 of the Narcotics Limitation Convention of 1931.

The duties of this Bureau included regulatory supervision over all stages of importation and manufacture of narcotics, and the registration of physicians, pharmacists and others concerned with their use. It was responsible also for the apprehension of those found to be violators of the narcotics laws, including those involved in the illicit traffic. The prevention of smuggling, an important consideration since the United States does not produce the materials for the natural narcotic drugs, was a responsibility of the Bureau of Customs. These two Treasury agencies worked in close co-ordination, and each maintained a small number of agents abroad for the purpose of preventing illegal shipments to the United States and co-operating with the enforcement agencies of other governments.

The Public Health Service, which was also at that date a Treasury agency, pioneered systematic studies of the nature and extent of addiction in the early twenties. Dr. Kolb, mentioned above, and Dr. Walter L. Treadway undertook a series of special studies, widely recognized as important contributions towards the development of effective measures for the treatment and rehabilitation of addicted persons. In 1928 the federal government authorized the establishment of the special Public Health Service hospital at Lexington, Kentucky, and later a similar institution at Fort Worth, for the purpose of treating narcotic addicts. An important purpose was to provide special treatment for federal prisoners known to be addicts, but provision was made also for patients admitted on a voluntary basis.

This Public Health Service activity continued within the Department of Health, Education and Welfare. Its hospitals, unique in their special programmes and facilities for the care of narcotic addicts, were also centres of the first importance in the research studies into the properties of the drugs and their effects. The extremely productive projects which their staffs undertook were carried on in association with the National Research Council, and drew upon the resources of the World Health Organization and principal medical teaching institutions throughout the world.

Drug addiction—character of the problem

The Committee found useful for the purpose of its study the definition of drug addiction drafted by the Expert Committee on Drugs Liable to Produce Addiction of the World Health Organization. *

In a recent statement summarizing the experience of the Public Health Service with the problem of addiction, over a period of thirty years, Surgeon General Leonard A. Scheele had reported :

" There are two groups of addicts. First are those who, after receiving repeated doses of narcotic drugs during a long and painful illness, become physically dependent upon the drug, and, therefore, addicted. In a majority of instances, people who become physically dependent in this way will lose their dependence simply by gradual withdrawal. A few do go on to become true addicts in the sense that they continue to be psychologically as well as physically dependent after efforts at withdrawal.

" The second and by far the larger group represents those in whom drug addiction is a manifestation of some abnormality of character or attitude. These addicts often say that they became addicted after having been introduced to the drug by their companions. For these people, the drug fills an emotional need, giving them a feeling of security, of being able

* See World Health Organization *Technical Report Series No. 21.*

to meet the realities and frustrations of life with more equanimity than they could otherwise muster. They usually suffer from any one of the types of character or personality disorders and have mental and emotional inadequacies that we classify as psychoneurotic, psychopathic, or more rarely, psychotic. These characteristics are not limited to narcotic addicts, they are found also in the chronic alcoholic and the barbiturate addict. In all of these addictions, the underlying emotional problem is likely to be similar. In fact, some narcotic addicts are first alcoholics, and turn to narcotic drugs as a secondary addiction. "

The Surgeon General has made the following qualifications of the above quotation : " It should be borne in mind that the mental illness from which addicts suffer is rarely of the kind that can be classified as insanity. Their illness is similar to that suffered by many delinquents in the population who do not use narcotic drugs. "

According to the Committee, analysis of the data concerning addicts tended to support the following generalizations as applicable at the present time :

1. The addict was likely to be a person of any social, economic, or intellectual status. The chances were 4 out of 5 that he was a male—almost exactly a complete reversal of the situation existing prior to the passage of the Harrison Act in 1914, when female addicts represented much the larger number. More than half were under the age of 30, 13% under the age of 21; of this latter group, however, nearly all were persons approaching their majorities.

2. Heroin was the drug of choice for the large majority of addicts. It was the drug most often encountered in the illicit traffic; it was easily adulterated; addicts reported that it produced a greater effect than other drugs. Since manufacture or importation of heroin was prohibited within the United States, it was available only through smuggling and subsequent illicit traffic within this country; it was apparent that heroin addiction required some form of contact with underworld sources. It was to be noted that heroin was now outlawed by all governments except Albania, Bahrein, Belgium, France, Hungary, Italy and Paraguay.

3. Since the costs of illicit drugs had been maintained at high levels, it was estimated that the addict dependent upon the illicit traffic had to spend from 50 to 75 dollars per week. Regular procurement of such an amount, considerably beyond the legitimate means of the average individual, accounts in part for the striking record of profit-motivated crime or other anti-social activity commonly associated with drug addiction. Available data indicated :

(*a*) Established patterns of delinquency prior to and following addiction to the drugs;

(*b*) The fact that a large majority of addicts, identified as such through other than law enforcement activities, were found to have become known to the police;

(*c*) A high degree of similarity between the settings and circumstances in which both addiction and delinquency were prevalent.

4. Despite the difficulty of arriving at anything like a complete understanding of the phenomenon of addiction, and the conservatism of those most competent to form opinions in advancing them, it seemed clear to the Committee that addicts of whatever description shared a characteristic and abnormal concern over the need for relief from pain, discomfort or anxiety, and that they were prone to look for aid in dulling their perceptions. In each case, the addict seemed to feel the need for relief from some oppressive circumstance, whether this related to physical pain, recognition of personal or social inadequacy, or more complex considerations. The effect of the drugs had been likened to the function of a crutch, which enabled an addict to get along in his given situation. Many addicts described the effects of drugs in positive terms of euphoria, but this apparently did not commonly continue beyond the early stages of addiction except for those who had become habituated to intravenous injections. For most, the drugs seemed to offer an escape which was a line of retreat, not an advance. Studies made in New York and Chicago indicated that in many instances the first use of drugs resulted from examples set by addicts enjoying local prestige, as in juvenile gangs; from a desire on the part of the individual to gain acceptance by his peers; or occasional thrill seekers who used drugs only as a phase in their pattern of delinquency, without developing into confirmed addicts. The manner of its spread was felt to justify use of the term " contagion ", particularly in the cases of the younger addicts.

Many and varied estimates had been made as to the number of persons in the United States addicted to narcotic drugs. The Committee regarded the current estimate of the Bureau of Narcotics, based upon the analysis of the figures tabulated later in this report, as the most accurate available. This estimate, indicating a current addict census of 60,000, was based upon the records of its own agents, and co-operating state and municipal authorities.* The validity of the method by which it has been arrived at was supported in part by the Chicago and New York studies, which indicated that a majority of the younger addicts, however identified as such, were known to the police. Addiction might have existed for a period of months before the individual attracted police or other official attention, but upwards of ninety per cent of such cases came within police knowledge within a relatively short period. Such duplication was found in checking the names secured in an exceptionally thorough and confidential census of addicts in metropolitan neighbourhoods.

It had been noted further that persons who had arrived at larger estimates base their conclusions chiefly on contact with or observation of various categories of addicts which were included in the overall addict census maintained by the Bureau of Narcotics.

The Committee felt that the existence of one addict was one addict too many. But the estimate of sixty thousand narcotic addicts, which the Committee regarded as the most reasonably accurate figure, was not as high as had been expected. The Committee was heartened to find that the numbers of juvenile addicts was smaller than had been thought even though, once again, the Committee realized that the addiction of any person, young or old, was clearly a matter of concern.

It was noteworthy that the rate of addiction found among military personnel was at the virtually negligible level of 3 per 100,000. The thoroughness with which that special survey had been conducted by the Department of Defence, coupled with the obvious difficulty of concealing narcotic addiction within the circumstances of military life, made such a finding especially encouraging. Only in the Far East, where drugs were relatively plentiful and cheap, and civil enforcement measures largely ineffective, had a significant

* According to the Bureau of Narcotics, 80% of these addicts are negroes.

level of addiction been discovered. In such an environment, clearly favourable to experimentation with and use of the drugs, the rate was found only to be close to that among males of military age within the civil population at home. That addiction had not been found to be more prevalent in this critical area reflected credit upon commanders and service personnel generally, for their adoption of and responsiveness to effective preventive measures.

The enforcement programme

It appeared to the Committee that with growing public interest in the narcotics problem had come an intensification of the enforcement efforts by local authorities. There were indications, meanwhile, that the volume of the illicit traffic was declining. During 1954 there were a total of 19,489 arrests under the narcotics laws as compared with 23,627 in 1953. The arrests of persons under 21 years of age dropped from 2,732 to 2,136. These figures suggested an encouraging reversal of the trend observed during the years immediately following World War II which, like the corresponding period after World War I, had shown increases in the numbers of reported offences.

State and municipal authorities had improved their agencies for coping with the local problem, by increase of the numbers of enforcement personnel assigned to narcotics squads, and provision of special training in this field. The Bureau of Narcotics had continued to receive a high measure of co-operation and support from the local agencies, facilitating concentration of the efforts of its own personnel on the major offenders, particularly in interstate traffic. The Bureau of Customs had continued its apprehension of smugglers of the drugs, and had recently strengthened its force of Customs agents on the Mexican border, in order to meet the changing channels of traffic from abroad.

Notable success had followed the various international efforts at controlling the production of the raw materials from which the narcotic drugs were manufactured, and in restricting their conversion and distribution to the requirements for medical and scientific use. The Narcotics Commission of the United Nations, and the World Health Organization, had been fruitfully active in this field. The United States had a continuing interest in encouraging efforts towards world-wide, co-operative controls of narcotic drugs, since illicit traffic was supplied through smuggling from abroad. While synthetic drugs were not as yet a factor in international traffic they clearly offered a threat for the future of control measures.

About 90 nations were parties to one or more of the international narcotics treaties. The United States Government had usually assumed the initiative in the adoption of these treaties.

Four organs at present exerted international narcotic control : The Commission on Narcotic Drugs, which was the general supervisory and policymaking body, reviewed annually the situation in all countries, considered necessary improvements in the control system, prepared new measures therefor, and appealed to public opinion. The Permanent Central Opium Board and the Drug Supervisory Body were specialized supervisory bodies which worked closely together on statistical returns and estimates of governments and watched over international trade. The Expert Committee on Drugs Liable to Produce Addiction of the World Health Organization was concerned mainly with medical aspects of drug addiction, and decided which new drugs, particularly the synthetic drugs, should be brought under international control. The Division of Narcotic Drugs, part of the United Nations Secretariat, worked on implementation of existing treaties, planned new measures, and conducted scientific research.

The proposed Single Convention, under consideration for approximately five years, was intended to simplify and replace all existing narcotic treaties, and extend control to poppy straw, coca leaves, and cannabis, as well as to synthetic narcotics.

The assignment of a small number of narcotics agents to duty in southern Europe and the Middle East had resulted in striking accomplishment in the way of assistance to the internal police activities of co-operating governments, and had aided materially in reducing the sources of supply of raw opium and processed drugs intended for the illicit market.

Evidence from seizures of drugs in the illicit traffic indicated that the risks of the clandestine trade had kept costs at a high level. Coupled with this had been a progressively greater adulteration of the drugs (sugar or milk being the common adulterant for heroin) associated with the greater scarcity of the basic drugs. Quantities seized in average individual cases, or by totals over comparable periods of time, had declined markedly in recent years; although, as in two recent instances, substantial amounts had occasionnally been encountered. There were continuing indications that the illicit drug traffic, though still supposedly profitable, had been recognized by the underworld as increasingly hazardous.

The Committee noted however that officers enforcing the narcotic laws felt strongly that their activities had been severely curtailed by a series of adverse court decisions in the last two decades. Their views were summarized as follows:

These decisions had upset investigative processes which had had the sanction of the courts for many years. Some of these processes were : evidential use of post-arrest admissions and confessions; authority to arrest without warrant; authority to search for and seize contraband before and after a valid arrest. Officers had been compelled to desist from close pursuit and to abstain from seizing plain evidence of crime before them in favour of obtaining arrest or seizure processes from a magistrate, where there had been any indication that the circumstances would permit of that course. The right of defendants to claim a third party's interest against search and seizure on a third party's premises had been asserted. The decisions had practically abolished the conception of a consent to search by the accused. Great latitude had been given suspected persons in asserting their rights against self-incrimination.

While restrictions imposed by these court decisions applied equally to all federal law enforcement efforts, there was belief on the part of many able law enforcement people that they penalized with particular force operations against the illicit narcotic traffic. This was a well organized, professionalized " racket ", with a high degree of recidivism among violators. These professionals were very well informed as to the limitations placed on the operation of law enforcement officers and could be expected to conduct their business so as to take full advantage of every new development. Furthermore, the contraband merchandise was small in volume and high in price; a fortune in narcotic drugs could be concealed under the clothing. It could be transported to a place of safety on a few moments' notice.

Even the shortest delay incident to obtaining a warrant from a magistrate under the most favourable circumstances had been fatal to many narcotic cases. Much of the business was in neighbourhoods where alarms are quickly spread; much of the activity of narcotic criminals was at night and

at weekends, or at other times when a magistrate could not be reached without delay.

The deleterious results of this line of judicial action had come to light occasionally in borderline cases which were thrown out of court. What had not appeared so clearly was the frustration and the lack of effectiveness and efficiency imposed on the law enforcement agencies, as the areas of immunity and sanctuary of the criminal expanded.

That these disabilities were real there was no question. When the multiplicity of areas was considered it was obvious that the cumulative result was the equivalent of a severe loss of manpower. In 1950, in an attempt to offset some of these handicaps, the Bureau of Narcotics shifted enforcement emphasis to the purchase of drugs from violators—a method which was slow, costly and inefficient by previous standards, but designed to avoid judicially imposed disabilities.

In more recent years there had been a tendency to take what might more appropriately be federal cases into the state courts, because of fear that technical considerations would prevent their full development in the federal courts. It was believed that the problem noted here should be considered by Congress and by the judiciary.

Treatment and rehabilitation

The Committee's report stated that patients were now withdrawn from physical dependance on the drugs without difficulty, as was routinely done at the Public Health Service hospitals; but treatment had usually to be carried out in a controlled and drug-free environment because of the patient's psychological or emotional dependence. Institutional care thus seemed to be an essential for all except those patients possessing unusually high motivation.

Rehabilitation towards resuming a useful place in society was commenced at once, and constituted an important part of the individual's reorientation, under psychiatric supervision. The patient was guided towards a better understanding of his own problem, and an effort was made to help him prepare for the give-and-take of normal life in a modern community. For many, supervised experience in good work habits, and the development of some basic skills, were important. Ideally, the patient should leave the institution with considerably heightened confidence in his own ability to solve many of the basic and recurring problems of ordinary life, without the aid of drugs.

Inevitably, the transition from institutional to free community life was a difficult one. The released former addict was likely to find himself cut off from helpful guidance and opportunity at the moment when he felt the need for them most keenly. Communities, even families, showed a marked scepticism, sometimes hostility, towards the former addict. Too often he could find quick acceptance only in his former haunts, and among those associated with his earlier addiction. His attitude was too surely and quickly that of seeking what appeared to be the only available and familiar line of retreat, a return to the drugs.

It seemed apparent, therefore, that post-hospital follow-up was essential to hopeful and lasting treatment of the addict. The recently released narcotic patient could benefit from many community services where these were available to him. They were likely to prove more effective where he could be guided in the light of the information gained from the close and continued observation of his special problems, gained during his hospitalization. Conversely, the progress already made in devising improved methods of institutional treatment would be further advanced if they could be planned in the knowledge that certain facilities within the individual patient's community would be available to him after release. The interchange and co-operation which could follow, between centralized institutions and home communities, would throw additional light on the least understood aspect of the addiction problem—those measures most likely to aid in its prevention.

Federal, state and local responsibilities

The Committee found that although the federal government had recognized its great responsibility with respect to the control of abuse of narcotic drugs, it was believed that in the aggregate, the major responsibility must inevitably rest with the states and the local communities. In recognition of this, commendable attempts had been made during recent years to adopt measures designed not only to bring the drugs under more effective controls at the local levels, but also to make greater provision for treatment and rehabilitation within the communities directly affected. The federal government must clearly retain responsibility for the control of importation; and should have the power to licence manufacture of synthetic narcotic drugs, fix quotas within medical needs, and control distribution. It should also continue its vigorous enforcement activities with respect to the international and interstate traffic, and the breaking up of the major distributive networks. Beyond this, it had provided for and should continue the important work of research into the properties of the drugs, and those courses of treatment found to be most effective in contributing to the rehabilitation of addicts, through its hospital programmes at Lexington and Fort Worth.

With increasing, though yet far from complete understanding of the problem of addiction, had come the realization of its importance to the local community, not only as the principal victim of the abuse of the drugs, but also as the environment in which corrective measures on behalf of the addict, his family, and society could be most hopefully undertaken. With recognition of the importance and broader implications of the subject, attention had been properly directed towards preventive as well as curative action.

It was apparent that, despite the highly important contribution to a solution of the problem made by the federal neuropsychiatric hospitals, they would be limited by the virtually insurmountable problems of effective follow-up, and reintegration of the individual patient into the life of his community after hospitalization, without the essential elements of community organization.

The Committee believed therefore that it was of the utmost importance to encourage the states and at least the major municipalities to undertake an extension of their hospital and community welfare programmes to include treatment and social guidance for the narcotic addict.

Equally necessary, and perhaps even more difficult to provide, was the co-ordination of activities designed to help the individual overcome the handicap of his addiction experience, in resuming his place as a self-reliant and productive member of society. Experience had shown that without such support, a large proportion of former addicts were likely to return to the use of drugs. To the extent that alternatives were not open to him, he was apt to return to the same environment, associations and personal dilemma—perhaps in even more aggravated form—which had originally brought him to recourse to drugs.

Recommendations

1. The Committee recommended that the federal government should encourage continuing studies of the narcotics problem within the states and municipalities. Such studies, related to the special circumstances found to exist within the communities concerned, should be productive of sound and practical planning for a reduction of the problem. The federal agencies already active in this field could provide valuable guidance and information for the assistance of state and city authorities.

2. Assistance to the states and municipalities by the federal agencies should include provision of courses of instruction for both public health and enforcement officers, to be conducted in Washington, and also by visits of small teams of qualified experts to appropriate centres. Some federal support for such activities would be required, but it was believed that their cost would be moderate.

3. In each state, and in each city where a narcotic drug problem existed, at least one senior law enforcement official should be specifically charged with duties pertaining to this problem. An important function of such a designated official would be to undertake co-ordination of enforcement activities in this field, including exchange of reports and information with the Bureau of Narcotics and enforcement agencies of other states and municipalities.

4. There should be available within each state, and the larger municipalities where justified by the number of known addicts, adequate provision for the withdrawal of addicts from the drugs, and appropriate programmes for their effective treatment and rehabilitation. In many instances such projects could be undertaken as extensions of existing hospital programme. In the planning of such facilities, the Committee felt that the assured maintenance of drug-free environments was essential to hopeful therapy, and that maximum use should be made of associated community resources and services in the social and economic readjustments undertaken on behalf of former addicts, following releases from institutional care. The suggestion had been advanced that the hospital facilities and services which were required might be established on a regional basis, by groups of two or more states acting in concert.

5. States should give consideration to the desirability of establishing or alternatively more frequently utilizing present procedures for the legal commitment of addicts to institutions where they might be treated and rehabilitated, either within or without the boundaries of the states concerned.

6. If certain of the states wished to provide for commitment to the federal hospitals, pending the availability of comparable facilities under state auspices, legislation authorizing this for a limited period, in the future, and on a reimbursable basis, should be considered for enactment. In view of the differing circumstances in which such commitments might be made, it was considered desirable to reserve to the Surgeon General, Public Health Service, determination as to the suitability of patients for admission, and their length of stay. In determining suitability of patients for admission the Surgeon General should be authorized to take into account the mechanisms and programmes for follow-up and aftercare within the state after the patient was discharged from the hospital.

7. The Public Health Service Act, Public Law 410 of the 78th Congress, should be amended to permit the Surgeon General of the Public Health Service to disclose information on voluntary patients under the usual regulations governing disclosure of material in the medical records, where, in his opinion, physicians and recognized health and welfare agencies would be enabled to act in the interest of the patients in further treatment of their addiction.

8. The progress towards full and effective international controls over the production and distribution of the narcotic drugs was felt by the Committee to have been highly encouraging. It recommended that the United States Government continue its policy of close co-operative effort through the agency of the United Nations, and with other international groups and individual nations concerned with the problem.

9. Frequent note had been made of proposals for including special information concerning narcotic drugs in texts and curricula for the schools. The Committee had formed the conclusion that unless carried out with extreme care, such programmes might have the undesirable effect of attracting attention to and arousing curiousity over experimentation with the drugs. It was felt that further study by educational authorities, in concert with those engaged in the regional inquiries recommended above, was likely to result in programmes best suited to local problems and conditions. The same cautions were urged on those sponsoring motion picture, television, and radio treatment of the subject. The Committee proposed to seek further advice and counsel on this matter, in realization of its extreme importance in assuring a healthful understanding of and popular attitude towards drugs.

10. The Committee had given extended consideration to the matter of fixing penalties of appropriate severity for violators of the narcotics laws. It had been impressed with the importance of assuring not only deterrents to this category of crimes, but also of facilitating social as well as medical rehabilitation of those offenders who were users of the drugs. It had considered the special problems of three groups of persons involved in the illicit traffic in narcotic drugs.

(*a*) Violators of the narcotics laws whose involvement was of an exclusively criminal character, and who were not themselves addicts or habitual users of the drugs. It had been noted that, of the three groups, this group included the highest proportion of major criminals, with respect to other forms of crime as well as the narcotics offences committed by them.

(*b*) Peddlers who were themselves addicted. This group was composed largely of persons with records of delinquency or criminality preceding as well as following their addiction. Criminal activity of persons in this category was usually, but not exclusively, restricted to relatively petty crime. Even their involvement in the drug traffic was commonly found in the lowest retail brackets. They were however much the more numerous, their aggregate contribution to the traffic was very large, and their control presented peculiarly difficult problems of enforcement and rehabilitation. This resulted from the fact that their use of drugs was associated with some degree of incapacity for normal emotional and social adjustments, resistance to corrective and rehabilitative efforts, and the impetus of a habit supportable only at an expense beyond the legitimate earning capacity of the average citizen.

(*c*) Addicted persons with either no records of criminal activity, or records of delinquency not involving viola-

tions of the narcotics laws other than obtaining and possessing the drugs for their own use. Anti-social activity among this group was commonly found to be of a petty character, but was, in combination with such legitimate activities as occupied the addict, sufficiently productive to support the high costs of addiction. This was the least homogeneous of the three groups; its members ranged from unemployables with serious psychiatric problems, to highly skilled professional people. It was the class from which a majority of peddlers were recruited, and it provided the essential market of consumers for the illicit traffic. It included also the most hopeful subjects of the curative and rehabilitative programmes, many of whom underwent voluntary treatment in the public and private hospitals.

The Committee found itself in immediate agreement with respect to the first and the third of these groups. For the commercial type of trafficker, motivated solely by hope of gain from his handling of the drugs, it was agreed that penalties of a severe type were indicated. With respect to the third group, not involved in importation, manufacture, or sale of drugs, it was felt that the problem was principally one of appropriate treatment and rehabilitation, with subsequent guidance by interested social agencies within the individual's community. However, note was made of the fact that in certain instances tangible evidence involving known major traffickers depended solely upon possession of drugs. It was felt therefore that any scale of penalties applicable to convictions based merely on proof of possession should be broad enough in range to cover both the relatively innocuous and the serious offenders.

With respect to the second group, those involved in both trafficking and personal use of the drugs, the question had been raised as to whether the levels of punishment most likely to serve as effective deterrents might not obstruct the reform and ultimate rehabilitation of the individuals concerned. While recognizing the probable validity of such arguments, the Committee believed that first consideration must be given to the protection of society from the trafficker.

It was to be hoped that the extension of treatment and rehabilitative services into communities importantly affected, as recommended elsewhere in this report, would not only aid in reducing the problem of addiction, but also compensate in some degree for the effects of long prison terms on convicted addict drug peddlers. The Committee noted the fact that the addict-trafficker had in the past shown a high rate of recidivism, both as addict and as peddler. Where he retained or returned to psychological dependence on the drug, he was often less responsive to the deterrents of future punishment than the more hardened, ordinary criminal. It was to be hoped that, as states and local communities accumulated experience with enforcement and treatment programmes, valuable and much-needed data on the peculiarly difficult problem of the addict in crime would be produced. Such information should receive close and continued study at all levels of government.

The Committee arrived at the conclusion that there was need for a continuation of the policy of punishment of a severe character as a deterrent to narcotic law violations. It therefore recommended an increase of maximum sentences for first as well as subsequent offences. With respect to the mandatory minimum features of such penalties, and prohibition of suspended sentences or probation, the Committee fully recognized objections in principle. It felt, however, that, in order to define the gravity of this class of crime and the assured penalty to follow, these features of the law must be regarded as essential elements of the desired deterrents, although some difference of opinion still existed regarding their application to first offences of certain types.

The Department of Health, Education and Welfare, because of its long experience with and responsibility for the treatment of addicts, further recommended for consideration a legislative step designed to provide for greater opportunity for the rehabilitation of certain addict-violators, particularly in groups (*b*) and (*c*), whose criminal activity was secondary to their addiction. Under this proposal, wider latitude was to be given to the courts by authorizing them, in the case of such addict-violators, to commit the convicted offender for a period of hospital treatment, followed by an extended period of conditional release under close supervision by specially trained personnel. This procedure was to be limited to those with the best prospects for rehabilitation, and was to be applicable only under optimal conditions of post-hospital supervision. A few cases could be selected immediately for this procedure, to be supervised in the few communities where adequate personnel and services for effective supervision and rehabilitation were available. The plan could be gradually extended to additional communities as effective local rehabilitation programmes were developed.

11. The Committee was impressed by the record of enforcement activities carried out by the Bureau of Narcotics, and especially by the results of its recent efforts at cutting off the foreign sources of supply of the illicit traffic. It recommended that consideration be given to an increase in the agent force of that Bureau, with appropriately increased administrative and operational support.

12. The development of synthetic drugs with properties similar to the narcotics, not dependent upon foreign sources of supply, had created a need for effective controls over their manufacture and distribution. It was recommended that consideration be given to legislation which would empower the Bureau of Narcotics to licence the manufacturers of such drugs, fix quotas to keep total quantities produced within the medical needs, and regulate their distribution.

13. It was recommended that the problems noted by enforcement officers and prosecutors, arising from court decisions limiting the procurement and presentation of evidence in narcotics cases, be given thorough and careful consideration from the standpoint of the optimum in law enforcement, in balance with and giving complete effect to the rights of individuals. The Committee believed that the judiciary and appropriate committees of Congress and of the various state legislatures should be made aware of these problems, in order to determine to what extent legislative action was desirable.

14. The Committee noted striking similarities between the individual and social problems raised by the abuse of narcotic drugs, and such substances as marihuana, barbiturates, amphetamines, and others which affected emotional behaviour. It had been observed that the circumstances and attitudes underlying excessive habitual use of such depressants and stimulants frequently paralleled or preceded those associated with the narcotics. It was recommended that a similar study of the extent and effects of the improper use of such drugs be undertaken, with a view to determining the appropriate scope of federal state and local regulatory controls.

Report of the Committee on the Judiciary of the United States Senate on the illicit narcotics traffic

By a resolution of 18 March 1955 the Senate of the United States of America authorized a nation-wide investigation of the illicit narcotics traffic and related matters. The aim of the inquiry was to find " ways and means of improving the Federal Criminal Code and other laws and enforcement procedures dealing with the possession, sale and transportation of narcotics, marihuana and similar drugs ". The task was carried out by the Sub-Committee on Improvements in the Federal Criminal Code which conducted hearings, heard witnesses and obtained evidence through questionnaires, etc. The *Bulletin* hereby presents the general recommendations of the Sub-Committee.

General recommendations

The Sub-Committee recommends :

International controls

That the Senate adopt a joint resolution urging all nations to ratify at the earliest possible time the 1953 protocol which would limit the cultivation of the poppy plant, the production of, international and wholesale trade in, and the use of opium to the medical and scientific needs of the world. Further, that the United Nations be urged to expedite the final drafting of the proposed single convention which would modernize, codify, and replace existing conventions and protocols on narcotics.

That the Senate adopt a joint resolution urging all nations which have not previously outlawed heroin to do so at the earliest possible time.

That the Senate adopt a joint resolution urging the United Nations Laboratory, which tests samples of the opium seized in the illicit narcotics traffic, to report the results of those tests not only to the determined country of origin and to the country in which the drugs were seized, but also to the Commission on Narcotic Drugs of the United Nations.

That the Senate adopt a joint resolution urging that the Division of Narcotic Drugs of the United Nations, recently moved to Geneva, Switzerland, be relocated at the United Nations Headquarters in New York, where the full force of wide public opinion can be brought to bear in the fight against the illicit narcotic traffic.

That high-level conferences be initiated between officials of the United States and Mexico for the purpose of agreeing to a treaty of co-operation and exchange of personnel for a mutual fight against the drug traffic across our common border, including provisions for extradition of narcotic violators and fugitives.

That increased personnel be assigned to work with narcotic agents of other countries in a co-operative effort to stop at the source illicit dope shipments intended for the United States.

Increased penalties

That minimum and maximum penalties be increased for all violations of the narcotics laws, with greatly increased penalties for sales to juveniles.

That heroin, the most deadly of all narcotic drugs, which is used by 80 per cent of all drug addicts in the United States, should be completely outlawed. Federal laws should deal with heroin offences not only as tax law violations but as criminal acts injurious to the peace, health, and welfare of the nation.

That smuggling of heroin into this country and sales should be punishable by penalties ranging from a minimum of 5 years in the penitentiary to a maximum of death (when the death penalty is recommended by a jury).

Heroin smugglers and peddlers are selling murder, robbery, and rape and should be dealt with accordingly. Their offence is human destruction as surely as that of the murderer. In truth and in fact, it is " murder on the instalment plan ", leading not only to the final loss of one life but to others who acquire this contagious infection through association with the original victim.

The death penalty recommendation in this case would be a maximum—not a mandatory sentence. It would be available for extreme cases, such as the man who started 40 high school students on heroin in San Antonio, Tex. It would put greater fear in all persons who might otherwise think of smuggling this drug into our country or selling it to our children.

That offences involving the smuggling of illicit narcotic drugs should be punishable, under the narcotic laws rather than the general smuggling statutes, in order that the higher narcotic law penalties might apply, and in order that the cases might be counted among previous narcotic convictions.

Enforcement procedures

That a chapter be added to the Federal Criminal Code providing for :

(*a*) More liberal search and seizure provisions in narcotics cases. When federal agents see the violation occur or have probable cause to believe that it is occurring, and in cases of consent searches, the agents should be permitted to make arrest without search warrants, and the government should be granted right of appeal from federal court decisions suppressing evidence thus obtained.

(*b*) Interception and admissibility of telephone communications in narcotics cases, with due safeguards, including the requirement of a sealed court order permitting such action.

The big-time traffickers in illicit narcotics are seldom caught and convicted, because they avoid all direct contact with the peddlers and ultimate buyers. Their operations are almost wholly limited to the telephone. Federal agents are

not permitted to intercept their communications or to use such evidence in court. As a consequence, the United States Government is unwittingly giving narcotics violators, especially the larger racketeers and wholesalers, a great advantage over federal law enforcement officers in their effort to stamp out the illicit narcotics traffic.

(*c*) Stricter provisions for granting bond in narcotic cases and speedier trials. All over the country the subcommittee heard evidence that narcotic violators intensify their sales after arrest and while out on bond. One witness became the biggest marihuana wholesaler in New York while out on bond during the two years between conviction and the disposal of his appeal.

(*d*) Statutory authority for federal narcotics agents to carry firearms, execute and serve search and arrest warrants, serve subpœnas, and make arrests without warrants for narcotics law violations occurring or observed in their presence.

(*e*) Mandatory reports from all federal officers and agencies to the Bureau of Narcotics of all narcotic addicts and violators who come to their attention, with pictures and fingerprints, in order that the Bureau may increase and complete its present record system and serve as a clearing-house for information concerning such persons; further providing that this information shall be available for law-enforcement purposes to state and local officials of all states which require their officers and agencies to report such addicts and violators to the Bureau of Narcotics.

It is vitally important that the names, addresses, pictures, fingerprints, and records of all known narcotic addicts and violators be assembled in one central agency. A splendid effort is being made in this direction through a voluntary system of reports set up by Commissioner Harry J. Anslinger in co-operation with state and local officials, but the Bureau has no authority to require these reports and has not been given the authority, funds, or personnel necessary to expand and complete this vital record system.

That narcotic addicts, illegal users of marihuana and narcotic drugs, and convicted narcotic violators (other than aliens) be prevented from leaving the continental limits of the United States except under special procedures approved by the Secretary of State and the Bureau of Narcotics.

Increased personnel and operating funds

Appropriation for at least 50 additional agents for the Federal Bureau of Narcotics should be provided at the earliest possible time, with ultimate addition of another 50 agents to bring the total to not less than 350 agents.

The Federal Bureau of Narcotics, under the able direction of Commissioner Harry J. Anslinger, has done a splendid job in holding the narcotics traffic to its present level, considering its limited personnel and operating funds. The Bureau is one of the few federal agencies whose personnel and funds have not been increased to meet the growing needs of our times.

Over a 25-year period a force of approximately 227 agents with an average annual expenditure of less than $2 million has enforced the narcotic laws of this country. This is entirely inadequate to-day, as evidenced by the fact that New York City alone has more full-time narcotic agents than the United States Government. Constant limitation of operating funds has seriously curtailed the activities of these agents in undercover investigations. The present force of 250 agents is 25 agents short of the number authorized by the Congress because of the inadequacy of its budget and appropriations, and at least 50 additional agents should be provided at the earliest possible moment.

Other recommendations

The sub-Committee will report in the very near future other findings and recommendations concerning treatment and rehabilitation of narcotic addicts, barbiturates, amphetamines, and special laws applying to the District of Columbia.

Campaign against drug addiction in Germany

A leading German medical journal, the " Deutsches Ärzteblatt " [1] recently published an article on the guiding principles concerning the dangers of drug addiction and the fight against it.

The following extracts are of interest :

The " Law on the Traffic of Narcotic Drugs " (Opium Law) and the " Ordinance on the Prescription of Medicines containing Narcotic Drugs and the Dispensing of them in Pharmacies " together with the various additional and subsidiary regulations constitute practical legal provisions for an effective combating of drug addiction provided they are consistently followed by all parties concerned. In addition, doctors must not only be familiar with these regulations and the different *Länder* regulations concerning the care of the mentally ill and those addicted to alcohol or drugs, but must also never hesitate to apply them to individual cases.

Doctors should be able to rely on the unqualified support of state authorities in carrying out such measures. There must be close co-operation and exchange of information between the medical profession and the public health authorities which supervise the narcotic drugs ordinance.

Many narcotics are being prescribed more frequently than is absolutely necessary. Since the drugs mentioned in the Opium Law, according to legal regulations, can only be obtained by producing a medical prescription, doctors, in both general practice and hospitals, must never forget the danger inherent each time a narcotic drug is prescribed. One of the obligations of superintendents in hospitals and clinics is the supervision of the prescription of narcotic drugs by the medical staff.

The treatment of drug addicts can only be carried out in closed psychiatric departments. Ambulatory treatment has proved unsuccessful.

The treatment of drug addicts is carried out in two stages : (1) disintoxication or withdrawal and (2) rehabilitation. Rapid withdrawal is the preferred method. It lasts four to eight weeks and should invariably be followed by a rehabilitation treatment which usually lasts six months. Disintoxication and rehabilitation together form an obligatory unit of treatment.

Rehabilitation need not be carried out in the same infirmary or institution as disintoxication. Wards must have adequate facilities for suitable kinds of occupational therapy as well as for an individual and adaptable psychotherapy; experience has shown that such a combined therapeutic procedure is essential for the success of the rehabilitation treatment.

On completion of the disintoxication and rehabilitation treatment the patient must submit voluntarily to regular supervision over a period of about two years. During this probationary period, urine tests should be made, without warning. Subsequent examinations adapted to the individual case should be carried out by the doctor in charge of the treatment.

The addict should be treated as a sick person and not as a criminal or immoral person. This fundamental attitude must not however hinder in any way the necessary legal and medical measures for combating addiction.

[1] No. 30, 21 October 1955.

Control of the opium alkaloid manufacturers

by Charles Vaille and Gabriel Stern

Mr. Charles Vaille, Chief of the Service central de la Pharmacie *of the Ministry of Public Health and Population of France, is the delegate of France to the Commission on Narcotic Drugs; he was chairman of the Commission at its ninth and tenth sessions. Mr. G. Stern, the co-author of the article, is Chief of the Bureau of Narcotics of the above-mentioned Ministry.*

The control over the manufacture of opium alkaloids, their salts and derivatives constitutes one of the essential tasks of the national services which are charged with the application of the international narcotic treaties. This control is one of the most important elements in the prevention of drug addiction, its aim being to prevent the diversion of narcotics into the illicit traffic.

The object of this study is to make a critical examination of the present control organization in France.

I. International obligations

The obligations to which the Parties to the various international treaties have subscribed provide for measures to be taken to control the manufacture of opium alkaloids.

These obligations derive from the provisions of Articles 6 and 22 of the Convention signed at Geneva on 13 February 1925, and Articles 16 and 17 of the Limitation Convention signed at Geneva on 13 July 1931.

Article 6 of the 1925 Convention lays down the principle of control over persons manufacturing narcotic drugs, as well as over the buildings in which the drugs are manufactured. It provides for the licensing of manufacture and for limiting manufacture to specified establishments and premises; persons licensed to manufacture must also keep registers in which must be entered the quantities manufactured, imported, exported or otherwise distributed.

Article 22 lists the statistics which the Parties must furnish to the Permanent Central Opium Board. In this way the manufacturing countries have to account for their manufacture by specifying the quantities of raw materials used and the quantities of products manufactured.

The 1931 Convention elaborated these provisions, which were rather general in character.

Article 16 of that Convention imposed on the Parties the obligation to exercise strict supervision over the raw materials and the manufactured drugs in the possession of and produced by the manufacturers.

Article 17 obligated the Parties to require manufacturers to furnish quarterly reports stating, in particular :

—the quantities of the raw materials or of drugs received into the factories;

—the quantities of drugs produced from these substances;

—the quantity of morphine which could be produced from the opium received; this proportion to be determined by a method prescribed by the government of the country concerned under conditions considered satisfactory by that government;

—the quantities of raw materials used and of the products manufactured therefrom.

The indications furnished by the Model Code drafted for the application of the 1925 and 1931 Conventions,[1] as also the historic and technical study published on the 1931 Convention,[2] do not contain any supplementary details in this connexion. It could not be otherwise. The spirit of the international conventions relating to narcotic drugs was to lay down principles, to impose obligations of a general character and, as regards the practical obligations of the Parties, to determine their general framework in order that the national administrations could apply them in the form most appropriate for them. Moreover, international administration cannot be a substitute for the national administrations.

II. French regulations

These international obligations are covered in France by the provisions of the Decree of 19 November 1948 relating to poisonous substances, Chapter III of which is devoted to narcotic drugs.

This text, which deals with all users of narcotic drugs, includes all obligations relative to internal accounting, stocking, delivery, etc., regulations which lead to the complete accounting control of narcotic drugs from their first appearance until their use by the patient. The present study deals only with the special provisions for the opium alkaloid manufacturers, the aim of which is to assure a special control. Such control is, in effect, provided for by Article 38 of the Decree of 1948 under which, by order of the Minister of Public Health, the manufacturers are required to furnish complete information on their activities.

This order is published each year [3] and consists of two parts :

(*a*) The first part, in application of the provisions of the Limitation Convention of 1931, specifies the maximum quantities of each controlled product which can be supplied for consumption on the one hand, and kept in stock by the manufacturers on the other hand.

(*b*) The second part repeats each year the special obligations of the manufacturers which supplement or, if need be, replace the general obligations provided for by the Decree of 19 November 1948.

The administration is careful to inform the interested Parties of the date of publication of the order in the *Journal officiel* so that there can be no excuse for any of the provisions not to be respected.

The manufacturers must, on the one hand, send in monthly statements of production and, on the other, they must ask

[1] League of Nations Document No. C.774-M. 365-1932 XI.
[2] League of Nations Document No. C.191-M. 136-1937 XI.
[3] This order also deals with the manufacturers of cocaine, pethidine and the galenical preparations.

for and receive a monthly licence to manufacture, which fixes the quality and the quantity of the drugs they may produce during the month.

These statements must contain details of all the operations carried out during the month. They therefore include the movements of opium (and of the poppy capsules used for the extraction of morphine).

In practice, the following must be entered :

—the quantities which have come into the factory;

—the quantities used in manufacture;

—the quantities which have been disposed of;

—the quantities in stock at the end of the month.

As regards morphine, the following data must be reported :

—the quantities extracted during the month, distinguishing between those emanating from opium and those extracted from poppy capsules;

—the quantities treated for the manufacture of morphine salts and derivatives (methylmorphine, ethylmorphine, etc.);

—the quantities sold;

—the quantities in stock at the end of the month.

As regards the other narcotics, the following must be entered for each :

—the quantities manufactured;

—the quantities sold;

—the quantities in stock at the end of the month.

In regard to sales, a statement must be furnished giving the name of the purchasers and the quantities of each product delivered to them.

The morphine content of the raw materials used must also be entered. This point will be dealt with later.

In practice, these statements are more complicated than described above, as other operations may be involved, such as returns of goods from customers, re-purification of adulterated products, etc.

Account must also be taken of the morphine recovered after conversion (into codeine, dionine, etc.), since such conversions are always incomplete.

The monthly statements must give exact details of all these operations.

Double accounting of these products must be made on the basis of their real weight and also on the basis of the anhydrous base which they contain.

Thus the morphine base which is extracted from the opium and which is finally used for the manufacture of the salts, codeine, etc. as well as all the salts of morphine, are entered as such, the corresponding anhydrous morphine base being shown opposite each figure.

This applies also to commercial codeine base, the salts of codeine converted into anhydrous methylmorphine base, and all other products.

At the beginning of each year, the manufacturers send in their general balance-sheet for the preceding year. This balance sheet again indicates in each case the morphine content of the opium used and consequently gives the total quantity of morphine contained in theory in the raw materials processed (the same applies to the poppy capsules).

The quantities used for manufacturing, both for the production of morphine and for its conversion into salts and derivatives, are given at the beginning and at the end of the year.

The quantity of morphine used must be given for each product made from morphine.

The yields from the various operations carried out are calculated on the basis of these data.

The manufacturers are required to furnish all necessary information.

III. Control

Control is twofold. It is carried out on the basis of accounting, and by inspection at the site.

A. *Accounting control*

The monthly statements are examined upon receipt; they are checked from a purely accounting point of view so as to ensure that no material error has occurred in the internal accounting of the manufacturer.

The rhythm of manufacture and delivery is also followed monthly to make sure that the relevant quantities remain within the estimates.

The yearly balance-sheet of each manufacturer is prepared by the administration, on the basis of the monthly statements, independently of the balance sheet furnished by the manufacturer.

The results obtained by each Party are compared and if there is a difference an explanation is requested.

B. *Inspections*

The manufacturers are visited by the pharmacy inspector of their district. His role consists of comparing the internal accounting of the factory with the monthly statements and, in a more general manner, of assuring himself that the manufacturer is complying with his obligations.

Apart from this, inspections of a more technical nature are carried out, though less frequently, in the course of which the variations of yield are analysed with the factory technicians.

The security measures taken to prevent theft are checked during these visits.[4]

Inventories are taken from time to time, without warning, to check the actual products which have been registered as taken into stock.

Administrative contacts between those responsible for the factory and the officials in charge of the control are very frequent.

Any difficult or anomaly of any importance is brought to the attention of the administration, and no consequent decision is taken without its approval.

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[4] Here is an example of the precautions taken in France in this respect : The extraction of morphine and the manufacture of narcotic products are carried out in premises isolated from the other factory buildings; and entry to this building is forbidden except to the personnel working there. An employee is located permanently at the entrance to the building, which is closed during the day by a sliding barrier.

When manufacture ceases in the evening, the apparatus containing products in course of conversion or drying is sealed; this applies also to the room in which the finished goods are stored before delivery to the consumers.

The movement of products within the factory is carried out simultaneously by several people and, for example, as regards morphine being converted into codeine, the workman who delivers the morphine to the person controlling the conversion operation waits until the morphine is mixed with the reagents before he leaves the conversion room.

To summarize, everything is done to ensure mutual control by the various people employed in the building.

The manufacturers have understood that nothing must escape the control services, with whom they maintain confidential relations.

IV. Critical study of the control

The difficulties in control are not administrative. The outline of the way in which control is carried out in France has been given only to show that all data needed by the administration to obtain an exact picture may be required of the manufacturer.

But technical factors of the problem arise which show that however severe the control from the administrative angle, there exist elements of uncertainty. The principal of these are as follows :

1. *Determination of the morphine content of processed opium*

The price of opium depends upon its morphine content. Buyer and seller are therefore obliged to confide to a third person the determination of this content. For many years the English laboratory of Harrison & Self has handled this work.

The results of this laboratory theoretically guarantee the control organs a large measure of certainty.

But a first problem is posed *by the taking of the sample for analysis.* If what is taken is not representative of the whole of the lot which was purchased, its analysis does not give sufficient indication.

Then comes the *analysis itself.* Significant variations have at all times been recognized in this respect, according to the nature of the opium and according to the process used. Extreme variations can be important, as they may lead to great differences regarding the determination of the morphine content of the volume of opium processed.

In France, where in principle the Harrison test is taken as the control basis, the manufacturer has himself to carry out tests on each lot of opium processed, by a method of analysis which must follow as closely as possible the actual process of extraction.

For control purposes, therefore, two runs of titrations are made, as well as random analyses carried out by an official laboratory. Experience has shown, however, that this last-mentioned practice does not afford certainty.

Discrepancies have been found between the factory titrations and the Harrison titrations, according to the source of the opium.

For the preparation of the annual balance two figures are available; one is the quantity of morphine determined by means of the Harrison test, the other the quantity determined on the basis of the factory test.

The heavier of the two is taken.

But what yield can one expect from the extraction? In France there are only two factories producing opium alkaloids; they use different processes and one has always had higher yields than the other.

The explanation is evident, and is a technical one, the processing of the one being better than that of the other. During a number of years, a yield of about 95% was obtained as the average for the extraction of morphine base (computed as anhydrous base).

This yield is reduced by the manufacture of salts and by the manufacture of the total opium extracts, which are computed in morphine as they contain more than 20% morphine, and the manufacture of which is rather delicate.

Since a number of years the manufacturers have progressively increased their yield, an average degree of 97% having been reached.

But if there is a variation of from 1 to 2%, what can be done? Such differences are commonplace in industry. On the other hand, on what basis is an industrial yield to be determined? It is obvious that it is not possible to draw an absolute parallel between the laboratory analysis and the analysis of an industrial factory.

The fact that the variations observed in France show an improvement in the yield is extremely reassuring. But even if this were not the case, unfavourable conclusions could still not be drawn.

This, however, makes for an element of uncertainty for which as yet there is no technical solution, in spite of the goodwill of the manufacturers who, as well as the administration, are interested in determining their yield accurately, even if only from an economic point of view.

It was in this spirit that recently a manufacturer completely renovated his equipment in an attempt to improve his yields. His process had resulted in an accumulation of grounds and tar, which were separately put back into production, but the morphine content of which became lower due to the delay in their processing.

The first results are encouraging because the yields obtained in 1955 by this factory were the highest yet reached.

2. *Conversion of the morphine*

In this paper, the conversions of morphine base into salts, which represent, in France at least, only very small quantities, will be omitted, as also the manufacture of little-used narcotic drugs.

The main part of the problem is the manufacture of methylmorphine, ethylmorphine and their salts, which absorb 96% of the morphine produced.

The methylation and ethylation of morphine are delicate operations.

Here also one comes across variations of yield between the two manufacturers, and even at one and the same factory from one year to another.

In France the yield is calculated by comparing the anhydrous morphine base corresponding to the methylmorphine (or ethylmorphine) produced, with the anhydrous morphine base utilized for this manufacture; naturally account must be taken of the amount of products being manufactured at the beginning and at the end of the year.

For methylmorphine (and its salts) the yield is from 92 to 93% and is fairly constant; this is explained by the process used which is technically excellent, and which is pretty well identical for the two manufacturers.

As regards ethylmorphine, so far it has not been possible to use a process for the ethylation of morphine comparable to that used for methylation. The yield is very inferior, the best being 85%, the least manufacturing hitch lowering it to 80%. Thus, in the Algerian factory it was established that water, which contained iron salts, had adverse effects.

Again, no comparison can be made between a methylation or ethylation carried out in a laboratory and the corresponding industrial operation.

3. *Natural codeine*

It is in connexion with natural codeine that frauds might be practised. The proportion of this codeine in opium is very problematical. In any case, natural codeine is a by-product of the extraction of morphine.

This means that these processes are based on the manufacture of morphine, the manufacturers of which are attempting to increase their yield. This extraction of natural codeine was relatively low in France, and it was not until the last few years that one of the manufacturers was able to devise a process which has practically doubled his yield. It is easy to imagine that such an improvement could have been used for illicit purposes. It would have sufficed to report that the excess of production arose from the conversion of morphine, and the corresponding quantity of morphine could have been made available for all sorts of illicit practices.

Such fraud, possible theoretically, is difficult in practice if the daily account and the monthly statements are strictly checked; it would involve much collusion.

These three points which have been summarily dealt with are the " bêtes noires " of control. They are not a recent discovery, the French administration having always been aware of them.

How was it possible to avoid the dangers implied? The solution was found after the coming into force of the 1925 Convention, by limiting to three the number of manufacturers authorized to extract opium alkaloids for the whole of the French Union.

An economic monopoly was thus given to these three establishments in exchange for an increasing security. The manufacturers, having no interest in losing such a monopoly, could not afford any fraud, however minor.

In 1949, one of the three manufacturers sent the administration statements which did not agree with actual production. Two weeks after this was established his licence was withdrawn. An investigation proved that there was no illicit traffic, and that it was purely through technical incompetence and for fiscal reasons that the fraud was perpetrated.

The decision taken was nevertheless maintained. Conscious of the possibilities of fraud, the French administration could not allow untrue declarations to be made, whatever the reason.

The uncertain elements of control had not been concealed from the manufacturers, who were very well aware of them; they were informed that nothing should be done to affect the legitimate confidence placed in them. This confidence having been put in question, there was only one solution : to withdraw the licence.

The rapidity of the decision (the time needed to convoke the inter-ministerial commission of narcotics charged with giving advice on the delivery or withdrawal of licences) surprised the manufacturers, and they understood perfectly that the establishment of the facts alone was sufficient.

Conclusion

The administrative methods of control of the manufacturers who extract opium alkaloids do not give rise to major difficulties.

The manufacturers are obliged to account faithfully for the operations they carry out, to report periodically to the administrative control, and to be ready to demonstrate their yield.

The international conventions impose this control on the Parties; the administration therefore cannot evade its obligations.

This amounts to practising an accounting control, the technical elements, however, being the determining ones.

In this field there are some uncertainties, the three principal being : the determination of the morphine contained in the opium processed, the yields from the conversion of the morphine, and the natural codeine which can be extracted from the opium.

The administration disposes of technical *laboratory* methods of control, which constitute, however, an uncertain basis on which to evaluate industrial results.

However complete the control, it must be recognized that confidence has to be placed in the manufacturers and that this confidence *must* rest on a solid basis. The standing of the licence holders should be unquestioned.

But it is wiser to link this confidence in the manufacturer with the latter's own interests. The French solution, the greatest possible limitation of the number of manufacturers, is a realistic one. This was seen when the occasion offered itself; by the withdrawal of a licence the manufacturers were shown that they need expect no leniency if they did not fully respect their obligations.

The two French manufacturers show full understanding with regard to the moral obligations of the administration, whose role they appreciate. They furnished proof of this by accepting the principle of an international monopoly for opiates, which the French delegation had proposed in order to find a solution to the difficulties encountered in adopting an International Opium Monopoly. They have proved it again by deciding to exchange their manufacturing secrets in order to obtain the best results in all those fields in which one was superior to the other.

This collaboration of the manufacturers with the control organization is the surest guarantee of the confidence which can be placed in them.

Contribution to the study of synthetic analgesic narcotics

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The present paper will deal with the experimental and medical aspects of the synthetic analgesic-narcotics and with the medico-social problem that they constitute. The following case summary plainly illustrates the subject of this work and gives from the outset a clue to the basic features of the drugs we propose to study :

O. L., 42 years of age, medical practitioner.
Morphine addict since 1945 as a result of paroxystic pains due to a kidney disease.
Has undergone unsuccessfully several courses of detoxication.
In 1949, took to methadone instead of morphine.
Later, learning of the effects of ketobemidone, had a sample sent to him and began with intramuscular injections. Craving developed with extreme rapidity. Changed to intravenous injections and experienced a feeling of well-being and increased capacity for work. Found the new product more potent even than morphine.
As craving for the drug grew, the dose had to be steadily increased, and he soon reached 100 ampoules i.v. per day (10-15 ampoules 6-7 times a day).
His physical condition remained unchanged. Appetite good, no loss in weight, no general lassitude. Noted, however, a marked falling off in mental powers and loss of association of ideas. No longer able to make differential diagnoses. Persistent insomnia completed the picture.
Withdrawal of the drug immediately brings on an acute state of anxiety and excitement, more acute than with morphine or methadone.
When he entered the hospital voluntarily for detoxication treatment, his psycho-motor system was found to be in a state of extreme excitation. He became threatening, demanded his discharge or a dose of ketobemidone, declaring that this was not an opiate. He left the hospital six days after entering it. (Quoted by H. Sattes (36).)

This example shows clearly the dual character of these substances :

Their beneficial side : banishment of pain. They are *analgesics.*

Their evil side : their repeated use produces a state of addiction similar to the classical states brought about by natural and semi-natural drugs. They are also *narcotics.*

This dual property, analgesico-narcotic (32), is characteristic of these synthetic substances.

We shall study in turn their experimental, medical and social-medical aspects.

A. Chemistry

Let us look at them under the various trade names which physicians and chemists find so difficult to cope with, and also as they really are.

When all the products now known as synthetic analgesics are listed together, their number is astonishingly large. This multiplicity, however, is only apparent and is solely due to the way in which different trade names are given to a single synthetic substance by the various pharmaceutical firms producing it.

In fact, the number of synthetic analgesic narcotics used in therapeutics is far smaller, at present about thirty. As can be seen from table I, they can be classed in three families :

The *pethidine* group, with pethidine at the head, followed by its derivatives—bemidone, ketobemidone, alphaprodine, betaprodine and meprodine.

The *methyl-morphinan* group, whose derivatives are the laevorotatory isomers, levorphanol and levometorphan, the dextrorotatory isomers dextrophan and dextromethorphan, the racemic forms—e.g., racemorphan and racemethorphan.

The *methadone* group, with methadone at the head. There are several derivatives in this group—methadol, acetylmethadol, phenadoxon, and their corresponding isomers.

To these three families may be added a fourth :

The *dithienylbutenylamine* group, study of which is still in the experimental and clinical stage.

A series of papers has been published dealing with the chemical aspects of these groups by Eddy (11), Eddy and al. (11 b), Géro (15), Glasson (16, 17), Lapière (27), Lespagnol (28), May (29), Schaumann (37), Small (38), Wilbrandt (44) & Wolff (47).

A review of these substances was recently made by Braenden & Wolff (9) and by Braenden, Eddy & Halbach (8).

All these products have a common basic structure similar to that of morphine (figs. 1 and 2).

4 phenyl N-methyl-piperidine : morphine and its derivatives, pethidine and its derivatives, methyl-morphinan and its derivatives.

4 phenyl (or thienyl) N-methyl-pseudopiperidine : methadone and its derivatives, dithienylbutenylamine and its derivates.

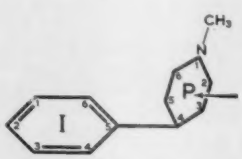

Fig. 1.—*Common basic structure*

Thus in their chemical structure and also, as we shall see, from their pharmacology and addictive properties, these various groups and morphine are closely related. We therefore feel that these synthetic derivatives may be regarded as synthetic *morphinomimetics.*[1] (33)

As in other branches of pharmacological chemistry (31), this similarity in structure suggests a relationship between structure and activity.

[1] A word borrowed by analogy from the nomenclature of drugs acting on the autonomic nervous system.

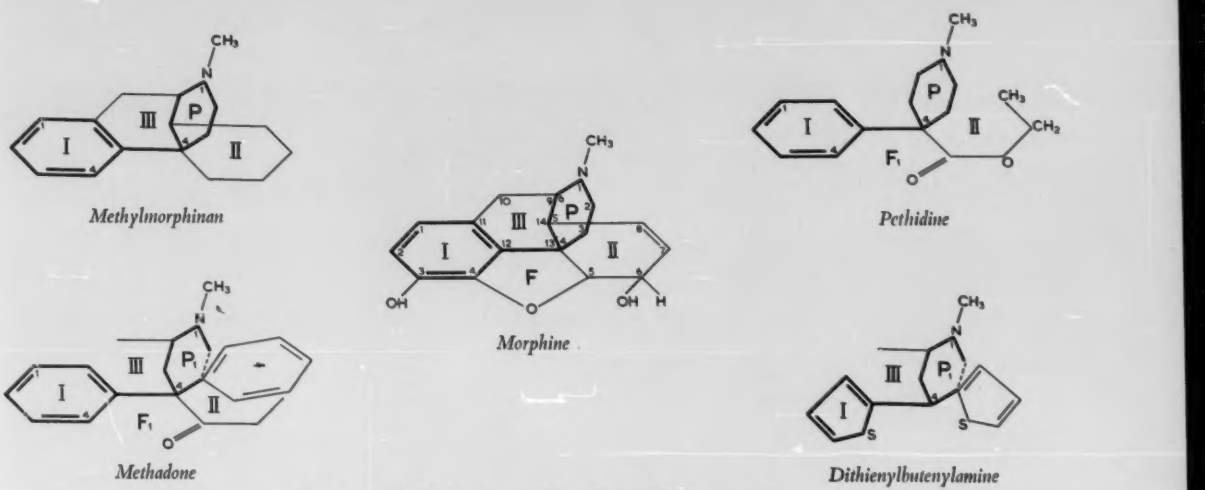

FIG. 2 — *Chemical structure of synthetic analgesic narcotics*

Table I

Official denomination [1]	*Registered trade mark* ®	*Manufacturer or distributor*	*Country*
		PETHIDINE GROUP	
Pethidine, or	Adolan, Alodan	Lab. Gerot-Chem. Pharm.	Austria
	Adolens	Salci	Italy
Demerol (N.N.R.)	Algil	Maggioni	Italy
	Antidol	Lab. Farbio	Italy
Isonipecainum (Swiss Pharmacopeia)	Bi-phen-al	Allied Drug Inc.	U.S.A.
	Centralgin	Amino AG	Switzerland
	Demerol	Frederik Stearns & Co.	U.S.A.
Meperidine (U.S.P.)	Demerol HC1	G. Breon & Co.	U.S.A.
	Dodonal	Riedel de Haën AG	Federal Republic of Germany
Piridosal (French Pharmacopeia)	Dolantal	Bayer Products Ltd.	U.K.
	Dolantine	Farbwerke Hoechst	Federal Republic of Germany
	Dolarenil	Paramed	Federal Republic of Germany
	Dolenal	Zent S.p.A.	Italy
	Dolestin	Teva Middle East...	Israel
	Dolisina	C. Erba	Italy
	Doloneurin	OPG-Utrecht	The Netherlands
	Dolosal	Spécia	France
	Dolosil	De Angeli	Italy
	Méfédina	Farmitalia	Italy
	Mendelgina	Mendelejeff	Italy
	Pantalgine	Union Chimique belge	Belgium
	Sauteralgyl	Lab. Sauter S.A.	Switzerland
	Simesalgina	Simes S.A.	Italy
	Spasmedal	Medinova	Switzerland
	Suppolosal	Spécia	France
Derivatives			
Bemidone	Hoechst 10446 [2]	Farbwerke Hoechst	Federal Republic of Germany
Ketobemidone	Cliradon	Ciba A.G.	Switzerland
	K – 4710 [2]	Winthrop-Stearns, Inc.	U.S.A.
Prodines \ *alpha*	Nisentil	Hoffmann-La Roche	U.S.A.
Prodines / *beta*	Nu – 1779 [2]	Hoffmann-La Roche (?)	U.S.A.
Meprodines \ *alpha*	Nu – 1932 [2]	Hoffmann-La Roche (?)	U.S.A.
Meprodines / *beta*			

[1] The names in italics represent the international non-proprietary names proposed for the International Pharmacopoeia.
[2] These drugs are not commercial products.

Official denomination[1]	*Registered trade mark* ®	*Manufacturer or distributor*	*Country*
METHADONE GROUP			
Methadone, or	Adanon	Winthrop-Stearns, Inc.	U.S.A.
Methadone (d-l) (U.S.P., N.N.R.)	Algidon	Lab. Farmac.	Belgium
	Algolysin	SANABO	Austria
	Algoxale	Sigurta Farmaceutici	Italy
Amidone	Butalgin	I.G. Farbenfabriken	Federal Republic of Germany
	Deptadol	Camille Corvi	Italy
Miadone	Dolophine	Lilly & Co.	U.S.A.
	Fenadon	FARINT	Italy
	Heptadon	E. Bertalanffy	Austria
	Heptanal	Treupha S.A.	Switzerland
	Ketalgin	Amino A.G.	Switzerland
	Mecodin	Chemapol S.A.	Czechoslovakia
	Mepecton	Pharma-Union	Belgium
	Mephenon	Pharma-Union	Belgium
	Methadone	Abbot Lab.	U.S.A.
	Moheptan	Paramed S.A.	Switzerland
	Physeptone	Burroughs, Welcome & Co.	U.K.
	Physeptone Linctus	Burroughs, Welcome & Co.	U.K.
	Polamidon " C " (Hoechst 10820)	Farbwerke Hoechst A.G.	Federal Republic of Germany
	Zefalgin	ZEF, G. Zambon & Co.	Italy
l-Methadone	Lévadone	Carlo Erba S.p.A.	Italy
d-l Isomethadone	—	—	—
Derivatives			
d-l Methadol	—	—	—
d-l Acetylmethadol	—	—	—
Phenadoxone	Heptalgin	Glaxo Laboratories	U.K.
MORPHINAN GROUP			
Levorphanol	Levo-Dromoran	Hoffmann-La Roche	Switzerland, U.S.A.
Racemorphan	Cetarin	Bayer	Federal Republic of Germany
Dextrorphan	—	—	—
Levomethorphan	—	—	—
Racemethorphan	—	—	—
Dextromethorphan	Romilar	Hoffmann-La Roche	Switzerland

[1] The names in italics represent the international non-proprietary names proposed for the International Pharmacopoeia.

Possession of a common basic structure is, however, neither essential nor in itself sufficient. For example, the dextrorotatory isomers of the methyl-morphinan group do not produce addiction and have no analgesic effect.

This observation is something of an afterthought. We felt it worth while making, however, as it sheds light on and gives unity to the study of synthetic analgesic-narcotics.

B. Pharmacological Actions

As already stated, these products are synthetic morphinomimetics. We shall not dwell on the pharmacological properties of the different groups, but shall merely summarize, with morphine as the point of reference, their clinical effects.

Morphine, in a single therapeutic dose (10-15 mg.), has in man a main action on the central nervous system and a series of secondary actions.

The main effect on the central nervous system is biphasic : excitatory-depressant.

The *initial phase of excitation* (agitation, insomnia, vomiting, hyperreflexia) is the only one among certain animals. In man it is transitory (pre-phase).

In the *depressive phase* the superior encephalic structures and the spinal structures are generally depressed and inhibited :

Pain centre—analgesia;

Sleep/wakefulness centre—hypnosis;

Respiratory centre—bradypnoea;

Coughing centre—antitussive action;

Emetic centre—anti-emetic action;

Vagal centre of the heart—bradycardia;

Vasomotor centre—hypotension, etc.

The inferior (medullary) structures, however, remain generally excited and awake (hyperreflexia, convulsions, etc.).

The *secondary effects* are seen on the peripheral nervous system (somatic and autonomic) and the effectors.

In therapeutic doses morphine has :

A localized spasmogenic action, particularly on the pupil, gastro-intestinal tract (spastic constipation), and urinary system;

A diaphoretic action, but an inhibitive action on the other exocrine secretory glands (salivary glands, etc.).

What are the specific features of each group of synthetic morphinomimetics?

In the MORPHINAN group the laevorotatory derivatives generally have an action of the morphine type, both qualitatively and quantitatively. Their safety margin is of the same order. They offer some small advantages : they are less hypnotic, have a more lasting effect, and act when given by the mouth.

The dextrorotatory derivatives have no analgesic action, but a marked antitussive effect.

The derivatives of the METHADONE group are characterized by an action which, though qualitatively of the same type as morphine, is quantitatively different.

In equivalent doses their analgesic action is stronger than that of morphine (2 : 1), but their other activities (emetic, hypnotic, respiratory inhibitive, constipating, etc.) are weaker. When given by the mouth the drug works efficiently but has a nauseous effect.

The PETHIDINE family might be described pharmacologically as hypomorphine, both qualitatively and quantitatively. Their analgesic action is less (in intensity and duration) than that of morphine, but is free from most of its undesirable features—soporific effect, respiratory depression, constipation, etc.

The other advantages of pethidine are a spasmolytic action by depressing the parasympathetic system, and its action by the mouth.

In order to give a pharmacological definition of the drug it is necessary to estimate its toxicity at the same time that its efficacy is considered. The knowledge of the effective and toxic doses, minima (D5), median (D50) and maxima (D95) toxic doses will permit the calculation of the indices which indicate its margin of safety, its tolerance. This margin of safety is sufficient for the acute toxicity of synthetic morphinomimetics. At this point we simply state these facts, but in the last part of this work we shall study some aspects of the problem of chronic intoxication (addiction).

In conclusion, comparative pharmacological study shows that all these products are synthetic morphinomimetics related to morphine in the following descending order : levo-morphinan, methadone, pethidine.

C. THERAPEUTIC USES

After this brief review of the various pharmacological effects of synthetic morphinomimetics, let us see to what extent and where the clinician has been able to turn them to account.

Indications

We shall show first the therapeutic uses of the major action of the drug—i.e., its analgesic action—and then those of its minor effects (antitussive, hypnotic, etc.).

1. Therapeutic uses based on the analgesic effect

Synthetic substances are widely used in all fields of medicine, particularly surgery, obstetrics and internal medicine.

A. *In surgery* they are used for minor operations, and in the pre-operatory phase (pre-anaesthetic medication), and in the post-operatory phase after major operations.

They have also been administered for post-traumatic shock.

The choice analgesic is pethidine.

Frommel and Radouco-Thomas have recently effected a comparative study of pethidine and morphine in anæsthetic premedication (13, 14).

B. *In obstetrics* pethidine has been successfully administered before delivery and for post-delivery pains. Its advantages are that it upsets the mother least and does not cause foetal asphyxia.

C. *In internal medicine* the synthetic analgesic-narcotics are used for the same purposes as morphine.

(*a*) Spasmodic syndromes of smooth muscles : acute vascular occlusion, biliary and nephretic colic. It should, however, be pointed out that, like morphine, the synthetic analgesic-narcotics relieve pain solely by acting on the centre; their spasmogenic action generally aggravates the local condition. "These drugs lull both the patient and the physician to sleep".

Pethidine, having some spasmolytic action, has also been widely used for bronchial spasm. It has checked many asthmatic attacks.

(*b*) Various algias of nervous origin (neuralgia, myalgia), migraines, algias of the locomotor, respiratory and genital organs (dysmenorrhea) etc.

In all medicine the relief of pain by synthetic derivatives, as by morphine, is a symptomatic relief. It is the resultant of a subjective cortical factor (suppression of anxiety state) and an objective diencephalic factor (blocking of pain tracts).

2. Therapeutic uses based on antitussive effect

The antitussive effect of most of the synthetic products studied is hardly greater than that of morphine, and not so good as that of codeine.

However, the dextrorotatory derivatives of the methylmorphinan series seem to be the right specifics for this effect as they have no analgesic action and do not produce addiction.

3. Other pharmacological effects

Their hypnotic, constipating and antidyspneic action has little or no therapeutic value.

Contra-indications

Synthetic analgesic narcotics should, like morphine, be given to children and old persons with care.

Furthermore, owing to the danger of addiction, repeated doses of the drugs must not be given in chronic ailments or syndromes.

An exception may, however, be made for intense and persistent pain in incurable disease.

This brief *exposé* shows that the pharmacological effects and the therapeutic applications of synthetic morphinomimetics are, in general, the same as those of morphine. Some advantages, however, such as efficacy when administered by mouth, longer action (methadone) and analgesic effects with less dangerous side-effects lead to their replacing the natural alkaloids.

There is a question as to whether this tendency is justified.

An objective, experimental and clinical review of the pros and cons of the three main groups leads to the following conclusions :

The methadone and particularly levomorphinan groups have no substantial advantage over morphine.

As for pethidine, it represents a true improvement, less by its (antalgic, spasmolytic, etc.) activity, but by its superior tolerance to that of morphine and to that of other synthetic morphinomimetics.

Unfortunately, its therapeutic qualities have lead to an abusive medical use which transformed that useful and easy to administer drug into one of the most dangerous narcotics.

D. Addiction

The introduction of synthetic analgesic-narcotics has strengthened the therapeutic anti-pain arsenal, but it has also added a new chapter to the problem of classical addiction.

It is now just as fitting to talk of *pethidinism*, *methadonism* and *levomorphinanism* as of *morphinism*.

The works of Andrews (1), Anslinger (2, 3, 4, 5), Himmelsbach (18), Isbell, Fraser et al. (12, 19, 20, 21, 22, 23, 24, 25, 26), Nathan (30), Rasor and Crecraft (35), Sattes (36), Vaille and Stern (39, 40), Wieder (41), Wickler (42, 43), Wolff (45, 46, 48) and others (38*a*, 38*b*) constitute a large contribution to the study of these drug addictions.

Medical problem

Before considering the social problem (which is much larger than has hitherto been suspected) of addiction to synthetic analgesic-narcotics, we will make a brief review of some of its medical aspects : aetiology; clinical picture, and some elements of its physiopathology; treatment; prognosis.

How is addiction to pethidine, methadone and levomorphinan acquired?

Most cases of addiction to synthetic analgesic-narcotics have a medical origin (1, 2, 3, 10, 35, 36, 39, 40, 41).

Whereas the natural and semi-natural analgesic-narcotics are known to all drug addicts, the synthetic ones are still very little known. They are rarely chosen at the outset for their narcotic effect (except by physicians and medical auxiliaries). They are prescribed for the patient as analgesics. Indisputable proof of this is given by the statistics collected by Rasor & Crecraft (35) from 457 cases of addiction to pethidine. We have summarized them in table II.

Thus 81 per cent of cases of addiction to pethidine are of medical origin.

Synthetic narcotics, administered for their therapeutic effect, also bring about a false euphoria, which some addicts say is greater than that of morphine. Some morphine addicts have become pethidine, methadone or levomorphinan addicts for this reason. Isbell quotes the remark of a methadone addict : " If God made anything better than that, He kept it for Himself ".

Table II

	Origin	%
Medical	Somatic — *Surgical*	24.7
	Somatic — algias post-operational	
	Somatic — algias post-traumatic	
	Somatic — *Medical* (Asthma, migraine, various algias)	37.2
	Somatic	81
	Mental anxiety, depression, etc.	19.1
Non-medical		19

It is this euphoria which the patient continues to seek even after the underlying psychosomatic trouble which was the reason for treatment has disappeared.

Physiopathological data and clinical picture

We consider addiction to synthetic drugs, like any other addiction, to be an adaptation syndrome.

Under the prolonged stress-effect of the drug the organism of the addict undergoes a process of adaptation leading, as in essential hypertension, to a high-level state.

The addict lives in a new state of biochemical equilibrium, or rather pseudo-equilibrium. Abrupt withdrawal of the drug causes the upset of this equilibrium, and this is a main characteristic of the abstinence syndrome.

The concept of the adaptation syndrome enables us to divide addiction into three successive periods :

The period of latency, during which repeated administration of the drug leads to tolerance and psycho-physiological dependence. This process is particularly rapid with pethidine and even more so with ketobemidone (10, 36).

The period of effective addiction, corresponding to the period of pseudo-equilibrium characterized by the classical addiction triad. Addicts to methadone and levomorphinan present a picture of the depressive type, as with morphine.

Drugs of the pethidine type, on the other hand, determined at the level of the central nervous system show a syndrome of psychomotor excitation of the parasympathicolytic type.

The withdrawal period. Abrupt withdrawal upsets the patient's equilibrium and so leads, as with natural and semi-natural drugs, to a psycho-physiological abstinence syndrome. This is less intense than in classical addiction, but often lasts longer. Hence we feel that the use of these products in the substitution treatment of other types of addiction is very much open to question.

How are synthetic-drug addicts to be treated?

By the classical withdrawal treatment in special institutions. Measures should at first be medical treatment, with or without symptomatic treatment of the abstinence syndrome. Psychotherapy follows, and finally social rehabilitation. Convalescence is the most critical part of the cure. " Withdrawal is nothing, consolidation everything."

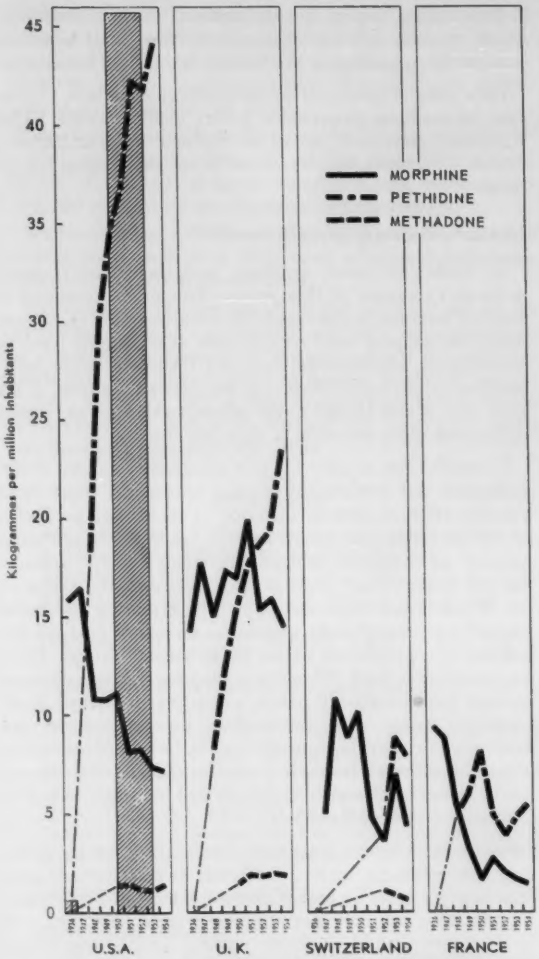

FIG. 3. — *Consumption of morphine, pethidine and methadone per million inhabitants*

This brings us to the *prognosis of such addicts.* As with addiction to morphine or its derivatives, there is no complete cure, only a suspension of need. The ex-addict is a potential addict, or, as Wolff calls him, a latent addict (48). For some reason or other he may take to the drug again, all the more probably as these drugs are easier to obtain than morphine.

After this brief review of the medical problem, we shall consider a few special aspects of the social-medical problem of synthetic analgesic narcotics.

Social medical problem

The considerable literature on the subject shows that the *synthetic analgesic-narcotics are just as harmful as morphine and its derivatives, both to the individual and to society.* Anslinger (3, 4), Vaille and Stern (39, 40) and Wolff (45, 46) emphasized the gravity of the problem.

Addicts, as we have seen, are mainly recruited among sufferers from certain chronic diseases. In bringing them relief, a second malady is created just as dangerous as the first, or even more so; they go out of the frying-pan into the fire.

The drugs are also harmful to society, since their addicts, like all others, are unproductive and socially disruptive.

What steps have been taken, and with what results?

A Protocol was concluded in 1948 which facilitated the extension of international control to synthetic analgesic narcotics. As a result, measures similar to those applied to morphine and its natural derivatives have been taken for synthetic substances.

Various recommendations were also made by the competent international bodies (Commission on Narcotic Drugs, Economic and Social Council, World Health Organization) to meet the problems arising from the development of synthetic analgesic narcotics.

Have these regulations succeeded in checking the growing danger of addiction to synthetic analgesic narcotics?

Figure 3 shows the variations during recent years in rates of consumption of drugs per million inhabitants in four different countries (USA, France, United Kingdom and Switzerland)(34)

It will be seen that :

Consumption of morphine and methadone are either somewhat on the decline or stationary.

Consumption of pethidine is rising, particularly in the Anglo-Saxon countries.

Does the pharmacological and therapeutic evidence justify this trend?

The therapeutic range of morphine is becoming more and more restricted, which explains the trend of the consumption curve.

The same is true of methadone, which, as pointed out in the section on pharmacology, is only a quantitatively modified morphine. After rising for a period, its consumption appears to have reached a plateau.

As for pethidine, the inordinate growth of its consumption may be partly due to its replacing morphine (owing to its almost complete freedom from the unpleasant effects which accompany the use of morphine as an analgesic), but is mainly due to its use in new fields.

At the same time a large increase is to be noted in the number of addicts to synthetic analgesic-narcotics. Figure 3 shows the trend of the number of pethidine addicts in the Lexington Hospital between 1946 and 1953. From 6 in 1946/47, their number rose to 457 in 1950-53.

It is not easy to explain the increase in such addiction despite all the international measures taken.

If we consider the various production and use factors : marketing (manufacturer), prescription (physician), dispensing (pharmacist), and consumption, we note the following :

The *consumption* factor is not to blame, as there cannot at the moment be any increase in demand. The man in the street, familiar with the habit-forming nature of the main natural drugs, is not even aware at present of the very existence of synthetic drugs. He will not himself go after them. Nor are the patients responsible at the outset. Believing they are getting the right treatment, they unwittingly become slaves to the drug and wake up one day to find themselves addicts.

The *dispensing* factor enters into only a very few cases. There are cases in the literature of dispensary pharmacists who have advised patients to take such products (10), and even of some who have dispensed them in hospital sizes. This problem seems no longer to arise, however, as the inclusion of these analgesic synthetic drugs in the list of narcotic drugs subject to control represents an insurmountable barrier for the pharmacist. Control is less strict in hospitals, however, and this fact, according to statistics, conduces to addiction among medical and auxiliary staff (35).

The *prescription* factor is much more important and complex; whereas for morphine and its derivatives addictions of medical origin are found in 30-40 per cent of the cases (35, 40), with synthetic analgesic narcotics they are much more numerous and may reach 81 per cent (35). The evidence in the literature suggests that the increase in the number of addicts to synthetic analgesic drugs is bound up with the tendency to prescribe them too readily (3, 4, 10, 35, 39, 40).

We have seen (table II) that of the 457 pethidine addicts in the Lexington Hospital, 81 per cent were of medical origin. In only 10-20 per cent of these cases was pethidine treatment justified. The remaining 90 per cent were patients with mental and physical troubles such as anxiety, overwork, dysmenorrhea, migraine, asthma, etc., for which treatment with synthetic analgesic-narcotics was not indicated at all and at times even contra-indicated.

To take only one example, it may be wondered how pethidine could come to be prescribed regularly in the treatment of asthma. The reason is fairly simple. The virtues of this drug as a spasmolytic have been greatly, and quite correctly, praised. In addition to relieving the asthmatic paroxysm, pethidine induces a state of pseudo-euphoria. It is hence easy to understand that the patient will prefer this drug to sympathomimetic, parasympathicolytic, and antihistamine drugs.

The problem, *mutatis mutandis*, is the same for all chronic ailments, whether medical or surgical.

The general therapeutic use of synthetic analgesic-narcotics is distinguished by a readiness to prescribe them which is at times astonishing. Physicians who would hesitate to prescribe morphine, for fear of inducing addiction, are much more ready to prescribe a synthetic analgesic. There seems to be a prejudice in favour of the synthetic drugs due to under-estimation of their addictive qualities.

This distinction, by no means justified, but unfortunately fairly widespread in the medical profession, between the capacity of natural and of synthetic analgesic-narcotics for producing addiction, is the stumbling-block of the whole system. Thus, through insufficient knowledge, physicians are unfortunately a contributory factor in many cases of synthetic drug addiction. Are they to be blamed?

By no means.

They are lost in the maze of trade names which prevent them from recognizing the synthetic analgesic narcotics. Carrière (10) mentions a family physician who refused to prescribe a long course of pethidine for fear of addiction and prescribed ketobemidone instead !

Furthermore, physicians learn about synthetic drugs through medical literature and prospectuses which dwell mainly on their therapeutic virtues (analgesic and antitussive effects, etc.), leaving capacity for producing addiction in the background.

One cannot expect the practitioner, overwhelmed with work, to settle down to study all the new drugs which are continually appearing in the various branches of medicine.

He is obliged to rely on the information given him. In that case, his readiness to prescribe is very understandable. Thus the social factors in the rise of the synthetic analgesic-narcotics include weaknesses which seem to escape the existing regulations.

How can this state of affairs be remedied?

As Vaille (39) noted, synthetic analgesic-narcotics appear to be in a category of their own as far as the prevention of abuse of narcotics is concerned. In addition to the regulations which are adopted from time to time at the higher level by international organizations, they call for more active collaboration at the lower levels. At the present moment, as we have seen, it falls largely to the physician to limit the spread of synthetic drug addiction at the lower level.

To enable him to play his part effectively, national health authorities and professional medical associations must make a greater effort to alert the members of the medical profession to the special dangers inherent in the continuously increasing number of synthetic analgesic narcotics. These authorities and organizations must in particular assist the efforts of the World Health Organization and the Economic and Social Council intended to make mandatory the use of international uniform non-proprietary names for all narcotic drugs. There are considerable legal difficulties in adopting a system of international non-proprietary names which could be used in all countries. Some names intended for international use may have been or may be appropriated by private firms under national trade mark laws. It is obvious that the international efforts in this field must be supplemented by action including legislation on the national level.

For the time being, as we have stated, the physician is the man responsible for limiting addiction to synthetic analgesic narcotics. In order to enable him to play his part in a more efficient way, several measures have been envisaged. If adopted, they would constitute a useful complement to the control exercised by the international organs.

These measures have to deal with the all but insoluble problem of nomenclature. This question was dealt with several years ago by Blanc et al. (6, 7) for pharmaceutical compounds in general : he stated that the multiplicity of denominations is likely to create difficulties in the day-to-day work of the physician or the pharmacist and in the therapeutic research which goes on in the world (6). But if the situation can be progressively clarified in some fields, it is especially difficult in the field of synthetic analgesic-narcotics.

It seems, however, that there is a possible way out now—namely, to take as the standard name for each drug the name adopted in the international pharmacopeia, and as the specific name that of the producing firm. Thus one would speak of Pethidine-Maggioni, Pethidine-Hoechst and Pethidine-O.P.G. and not of Algil, Dolantine, Doloneurin, etc.

As applied to narcotics the generic name of the pharmacological family is itself, as we have seen, a second source of misunderstanding. The literature discussing their therapeutic uses describes them as *synthetic central analgesics*, whereas the bodies and specialists concerned with their addictive capacity generally call them synthetic drugs.

Neither of these descriptions gives a clue to the twofold action of these substances; and that is why we have used a term which we feel to be more in accordance with the facts —namely, *synthetic analgesic-narcotics*. This we have deliberately used throughout this paper.

There is no question here of a new terminology. Our object is much more modest—namely, to help those who control the use of synthetic analgesic-narcotics at the consumption level, and particularly the physician and the chemist.

We hope that as a result the efforts of the international and national bodies will meet with more effective collaboration from these workers at ground level.

The statement of pros and cons that we have drawn up shows that the synthetic analgesic-narcotics, rationally used, are a powerful weapon in the struggle against pain and one which may well have a place of honour in the therapeutic arsenal. However, each of these drugs hides a serious danger of addiction and, if they are misused, the worthy Dr. Jekyll may become a dangerous Mr. Hyde.

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Medical perspectives on international control of synthetic narcotics

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This article was transmitted for publication in the Bulletin *by Mr. Harry J. Anslinger, the Commissioner of Narcotics of the United States of America.*

The United Nations Commission on Narcotic Drugs at its tenth session recommended to the Economic and Social Council a Turkish-Yugoslav draft resolution which would (1) invite governments to make the medical and allied professions aware of the special dangers, if any, of the new narcotic drugs placed on the market, and (2) recommend that governments prohibit the production and the use of such synthetic narcotics as they do not consider indispensable to the public health.

The Economic and Social Council, by a rather close vote, rejected the draft resolution. However, the Council did adopt another resolution, No. 588 E (XX), of which a paragraph (6) reads as follows :

" To warn the members of the medical and related professions when appropriate, of the special dangers to public health that might be caused by any new narcotic drugs placed on the market and to invite them to study the desirability and possibility of prohibiting the production and use of such synthetic narcotic drugs as they do not consider indispensable to public health. "

Implementation of such a proposal even in its final form provides the distinct possibility that ignorance of the true facts as they relate to the interpretation of the phrase " indispensable to the public health " may have disastrous results. Well-meaning administrators may discard the scientific spadework of the last several decades just at a time when there is reason to hope for success in the dissociation of analgesia from addictive properties in this class of compounds.

Prior to the introduction of the draft resolution the Commission had available for study a paper (Bull. World Health Org. 13, 937-998, 1955) by the World Health Organization which examined whether any relationship existed between the structure of the molecule and the analgesic action of substances with morphine-like effects. They also had the benefit of hearing a statement by one of the authors of the paper, Dr. Nathan B. Eddy. As summarized in the report of the Commission to the Council (E/2768, paragraph 217) :

" Dr. Eddy expressed the opinion that at the present time medical needs could in general be satisfied by the use of synthetic analgesics, without ill effects to the patient; that synthetic drugs differed from one another in addiction-liability just as did ' natural ' drugs, i.e., drugs derived from natural substances like opium; and that, while specific studies on this point would be undertaken in the near future, it could already be stated that the risk of addiction through the use of synthetic drugs was at least no greater than was the case through the use of natural drugs. Withdrawal of methadone, however, was considered less difficult for the addict than withdrawal of morphine. He also drew attention to the possibilities just beginning to appear of separating analgesic action from addiction-producing properties in certain kinds of synthetics."

Whereas the WHO paper and the statements of Dr. Eddy were clear in presenting an accurate factual account of the present situation, these data were not kept in proper perspective during the subsequent debate regarding the major problem at hand—*the establishment of a resolution or protocol which would reduce* all *types of drug addiction at the world level.*

Examination of the total transactions of the tenth session reveals that for purposes of debate, only such fragmentary evidence or statements best suiting the momentary needs of the proponents or opponents of this proposal appear in the record. Therefore each member of the Commission was obliged to reconstruct the total world picture of " synthetic " versus natural narcotics in the light of his own individual knowledge or experience in order to gain proper perspective. Since the largest clinical experience with " synthetics " has been obtained in the United States, most of the remarks pertain to the American situation. As would be inevitable in such debate, comparatively insignificant facts which are new and startling often carry undue weight in comparison with knowledge which has become common property because of its age and ubiquity.

Had the original resolution been accepted by the Economic and Social Council without modification, it could have enunciated a policy which might have served as a serious obstacle to the further scientific development of the " synthetic " narcotics. Even in its present form the phrase "indispensable to public health " provides an open door for the exploitation of private economic interests since it would be most difficult to find agreement among even the most outstanding medical scientists concerning a list of substances which either scientifically or legally could be declared indispensable to the public health.

Is a drug that is highly valuable necessarily indispensable? A drug may be invaluable to one patient, for instance where the patient cannot for any one of several reasons use other narcotic agents, and yet the drug might not be considered indispensable to the *public* health.

The test should not be indispensability. On this basis one may also argue that there is nothing indispensable about the need for relieving pain. Indeed in certain emergencies physicians may for a while dispense with the task of relieving pain in order to first stem the flow of blood and combat shock. The term " indispensability " is a highly relative one in this context depending on the social mores and the prevailing local attitude toward physical suffering. It is a fact that some peoples are more tolerant of physical hardship and suffering than others. For instance, as a general thing, orientals endure pain, torture and death with greater equanimity than occidentals.

It is evident from the debate in the Commission that the term " synthetic " as used in the resolution is considered to

have a limited and specific meaning since synthetic morphine, heroin and other congeners of the opium alkaloids derived by relatively simple chemical manipulations of the morphine or thebaine molecule are not considered to be " synthetic ". The distinction implied in the resolution then is between " horticulturally derived " narcotic products whether natural or modified by synthetic procedures versus " laboratory derived " substances.

Judging from previous actions of the Commission, no major difference of opinion seems to exist in international discussions concerning :

(1) the desirability of eliminating certain " synthetics " (ketobemidone) as well as certain natural substances (heroin) from general use as being *not* indispensable to the public health because of their large addiction potential despite their potent analgesic and therapeutic activity.

(2) The desirability of declaring certain natural substances (morphine) *as* indispensable even though the addiction potential is very large and the therapeutic potency less than some of the " synthetics ". Even though no overt action of the Commission is apparent from the record, pethidine is tacitly accepted as indispensable even in states like France where other " synthetics " are barred in favour of heroin. It seems clear then that the term " indispensability ", when put to the practical test and using the Commission's own criteria, has no uniform scientific connotation but is applied to fit a wide variety of different circumstances.

The author is fully aware that legal definitions and decisions are sometimes in conflict with scientific fact, and that international protocol often involves propositions in which the interests of the minority are submerged to those of the majority. Even with these limitations in mind, a search for a logical basis of discussion of the original resolution invites the physician and medical scientist to propose two major questions :

(1) Is " indispensability " to the public health primarily a medical and social issue or is it an economic problem?

(2) Why should " synthetic " drugs *as a class* be less indispensable than natural drugs if the answer to the first question is medical-sociological rather than economic?

In spite of the affirmative vote in the Commission and the ambiguity which surrounds the term " indispensable " the consensus in the Commission seemed to support the view that the medical profession in each signatory State should furnish the data and the opinions upon which final decisions would be based. This view was supported firmly by the opponents of the original Turkish-Yugoslav resolution on the premise that no other professional group could conceivably establish the scientific basis for decision and that their opinions should prevail in each instance. In support of this premise it was pointed out by the United Kingdom representative that the wishes of the individual states had always been respected in this regard, citing as an example the individualistic position of France in deviating from the heroin ban at the instigation of its medical profession. In support of the original resolution the Turkish representative stated, " that if the freedom of the medical profession was to prevail over the judgment of international organizations, as the United Kingdom representative wished, international agreements on narcotic drugs would no longer be effective, for there would always be exceptions " (E/CN.7/SR.277, p. 8).

Despite this dissention, it seems reasonably fair to accept the majority position of the Commission—that in decisions involving dispensability or indispensability to the public health, medical should outweigh economic considerations. Reasoning from this premise, it seems logical for a member of the medical profession with a background of thirty years of study and pharmacologic experimentation in this specific field to review the overall proposal from the point of view of science and medicine. In order to keep such a review *comparative* (an aspect of the problem which could be easily lost sight of in the face of such statements as " alarming increase in the number of persons addicted to synthetic narcotic drugs " (E/CN.7/SR.275, p. 10)), the present world situation with the natural products must be brought again into sharp focus even though it is an " age-old " problem.

The author therefore proposes to adhere strictly to the scientific aspects of the problem in an attempt to answer the following question. *From a medical and scientific viewpoint are " synthetic " drugs as a class less—or more—indispensable to the public health than " natural " drugs?*

For clarity of presentation it is proposed to analyze the reasons which have been or might be presented in support of a categorical statement which *must* be true *if* there is a valid scientific or medical basis for legislating or establishing protocol against " synthetics " as a class.

National and international abuse and the potential hazards to health associated with the use of all " *synthetic* " *narcotic drugs is greater than with the use of* all " *natural* " *narcotics.*

A. INHERENT PROPERTIES OR CONDITIONS ASSOCIATED WITH THEIR PRODUCTION WHICH ENDOW " SYNTHETICS " WITH QUALITIES WHICH MIGHT MAKE THEM MORE HAZARDOUS AS A CLASS THAN THE " NATURAL " NARCOTICS.

1. *The " synthetics " are easy to produce in the laboratory and hence more difficult to control than natural products.*

At first glance this statement is impressive although no practical test of its validity has ever been made. Except for a single case, no evidence is available that synthetics are being produced illegally for addict use even though there has been an insignificantly small diversion of legally produced materials into illicit traffic. Since the raw intermediates of synthetic manufacture are used in the production of many other chemicals, it must be admitted that control at this source might be fairly difficult especially in view of the fact that the preparation of some of the synthetics involves comparatively simple chemical procedures and methods of manufacture are often a matter of public record.

However, control of the manufacture of the " synthetics " may not be an insurmountable problem. Acetic anhydride is used in the conversion of morphine to heroin and although acetic anhydride is used for many other purposes, such as the manufacture of aspirin, any sudden or unexplained demand by individuals who have no known legitimate use for it has been a signal to enforcement officers to investigate. In a similar way both diphenylacetonitrile and dimethylaminoisopropyl chloride are used primarily in the manufacture of methadone although small quantities of both of these chemicals may be used for other purposes. However, any unexplained increase in their production or sale could be used to instigate an investigation.

In other instances the production of the synthetics can only be carried out by higly trained specialists because of certain

dangers present in manufacture. In making pethidine, for example, it is necessary to go through the production of nitrogen mustard types of compounds which present severe hazards to workmen because of their very great toxicity. It is difficult to see how " underground " operators could have the necessary resources in both equipment and scientific personnel to carry out this reaction without encountering disastrous results. Despite the fact that synthetics have been produced in the United States for sixteen years, only one instance of illicit manufacture—and that on a relatively small scale—has ever been encountered.

In discussing this problem before the Commission, the Turkish representative stated, " *It was an undeniable fact that while the raw materials of natural alkaloids had been under control for the past forty years* (author's italics) the raw materials used in the manufacture of synthetic drugs were not controlled, and moreover, were virtually uncontrollable " (E/CN.7/SR.275, p. 9).

One must infer from this statement that the Turkish representative really meant that *international protocol governing opium had been in full force during the period cited,* since it is quite obvious that *effective control has never even been approached.* It is of great significance to the present discussion that one can find no dissenting opinion offered by any member of the Commission to a statement made a few days later by its Chairman, the representative of France. In discussing a Model Code for application of the 1953 Protocol for Limiting and Regulating the Cultivation of the Poppy Plant, the Production of, International and Wholesale Trade in, and Use of Opium, he said,

" Much ground has been covered since the first conference in Shanghai and the New York conference, but although progress had certainly been made in those forty-four years, it was limited. This was not surprising. The 1953 Protocol alone would not be a final end to the illicit traffic in illegal use of opium. There were still many social problems to be solved before the goal was reached, and *they were beyond the scope of the international bodies dealing with narcotics. Their decisions must be realistic enough to be applicable and at the same time be a step forward*" (author's italics) (E/CN.7/SR.279, p. 12).

The world production of opium is just as large now as it has ever been and probably much larger. It is clear that ideological differences and economic pressures assure that the illegal world demand for the opium alkaloids, however large, will certainly be supplied, partially by diversion of the cultivation or the production capacity of those who ostensibly adhere to protocol, but who in reality do not.

These are the facts. In the absence of a problem in being, it becomes difficult to find, *a priori,* a logical basis for differentiation between " synthetic " or natural products on the basis of supply alone.

2. *The " synthetics " do not possess any pharmacological characteristics which give them therapeutic advantages over natural products.*

It seems hardly necessary to adduce all of the evidence which is available to refute this statement. Suffice it to point out that synthetic narcotics are now known which individually surpass the natural product in every known category where the latter are therapeutically defective; less respiratory depression (pethidine); less gastrointestinal effect (pethidine); better oral effectiveness (levorphan, methadone); greater duration of action (levorphan); less tolerance development (methadone); less physical dependence and primary addiction liability (methadone). Although no single agent possesses all these advantages, the above facts alone suggest strongly that the search for such a desirable compound is likely to be met with success.

3. *The " synthetics " produce greater euphoric effects than the natural products and more easily induce " craving " and ultimately addiction in non-addicts who are given the drug for therapeutic purposes.*

A test of this statement can be made by determining the number of primary addicts to the synthetic narcotics. While this is not an easy figure to determine, some data are available for pethidine. Since the American experience has been used as the principal basis for arguments in the support of limitations of " synthetics ", it seems pertinent to review this situation. Comparative figures of pethidine production and American consumption for 1946 and 1953 are :

	Total production (ounces)	*American consumption (ounces)*
1946	123,362	101,102
1953	313,968	270,566

In a recent study Rasor at Lexington has reported on a total of 453 pethidine addicts which were treated in this institution in a 39-month period. Of these 63% were primary addicts. More than half listed chronic illness as a basis for the addiction and physicians for their principal, if not exclusive, source of supply. Of the total number 91% were admitted voluntarily for the treatment of their condition.

In the following table is listed the domestic consumption of pethidine in the United States of America in comparison with the other principal narcotics, " synthetic " and natural, for 1953. They are as follows :

" *Synthetics* "		
Pethidine	270,566 oz.	76,570,178 doses (100 mg.)
Methadone	6,942 oz.	1,964,386 doses (10 mg).
		78,534,464 doses
Natural		
Morphine	53,071 oz.	150,190,930 doses (10 mg.)
Dihydromorphinone	3,662 oz.	5,181,730 doses (2 mg.)
		155,381,660 doses

In this summary other natural alkaloids such as codeine, ethyl morphine, and dihydrocodeinone have been discounted inasmuch as they are largely used as antitussives or in small amounts in liquid preparations and do not constitute or create a potential addiction hazard. Other " synthetics " have also been discounted since data are not available concerning their consumption, although it is known to be small.

An analysis of the figures indicates that American physicians prescribe the " synthetic " narcotics, pethidine and methadone in approximately one-third of all instances in which a potent analgesic is required. It is certain that the average 140 cases per annum of pethidine addiction listed by Rasor is not an accurate guide to the total number of U.S. cases of addiction with this substance. This figure gains relative significance, however, when the estimated 60,000 narcotic addicts in the U.S. is considered, of which 93.7% are believed to be addicted to heroin, morphine, or other natural drugs. Since only 6,3% or 3,780 are believed to be addicted to synthetic drugs

and only a few instances of primary methadone addiction are known to exist, it is exceedingly difficult to find much actual or comparative evidence on which to build a serious case against the " synthetics ". This is especially true since they have been in extensive use for 10 years and the consumption in 1953 is still less than 3 times that of 1946.

4. *Tolerance development is more rapid with the " synthetics ", requiring more rapid increase in daily intake to retain analgesic effects.*

To the contrary, tolerance development is more delayed in most instances, especially with methadone.

5. *The degree of physical dependence is greater with the " synthetics ", thus inducing more profound withdrawal signs.*

To the contrary, the degree of physical dependence to pethidine and methadone is clearly less than of most of the natural products. Only with ketobemidone is there clinical evidence of excessive danger in this respect. This compound had rightfully been subjected to severe restriction at national and international levels (at least until use in those countries permitting its availability for medical use can confirm the estimated hazard).

6. *The toxicity is greater with the " synthetics ", resulting in more cases of accidental poisoning, and the treatment of poisoning is more difficult.*

To the contrary, no greater inherent toxicity resides in the " synthetics ". Nalorphine (N-allylnormorphine) is capable of antidoting effectively the toxicity of all of the " synthetics " in common use.

B. PROVEN HAZARDS ASSOCIATED WITH ACTUAL USE WHICH DISTINGUISH " SYNTHETICS " FROM NATURAL NARCOTICS.

1. *Physicians being unaware of, or careless with, the hazards of the " synthetics " are producing greater injury to the public than with the natural products.*

There is some apparent evidence to support such a statement in view of the experience with pethidine in the United States as detailed above, especially since the known cases are almost exclusively connected in some way with legitimate therapeutics, both as to origin of use and source of drug. Considered alone, this fact is sufficient cause for alarm to initiate educational measures among physicians for its correction. When considered in perspective, however, one must recall that a similar situation arose in the United States with respect to dihydromorphinone which was exploited initially as a non-addicting agent. Even heroin was introduced for the treatment of morphine addiction! The therapeutic benefits of pethidine are sufficiently impressive to American physicians to cause them to select this compound to produce almost one-third of the effective " potent analgesia ". Its use has provided a clear-cut reduction in dangerous hazards in obstetrics, respiratory disease, old age and so forth. When weighed against these advantages the addiction hazard shrinks materially. From a scientific point of view it would be difficult to refute the statement that therapeutic abuse of pethidine whether through ignorance or design would be less hazardous than comparable abuse of morphine.

2. *Psychologically defective individuals prefer " synthetics " to the natural products as a vicarious substitute for their feelings of inferiority and therefore become addicted more easily.*

This statement is clearly contrary to the facts when applied to any of those drugs which are now in common use. Possibly some new synthetic may emerge which may fit this category; possibly it applies to ketobemidone; but there appears to be no difference of opinion among either scientists or regulatory bodies concerning the banning of *individual* compounds which fit into this category.

3. *Addicts long-addicted to the natural products prefer the " synthetics " and transfer their addiction to the " synthetics " whenever possible.*

There is no evidence of any type to substantiate this statement.

4. *National and international drug rings in recognition of all of the facts stated above are abandoning the smuggling and " pushing " of natural products in favour of the " synthetics " whenever this is possible.*

There is practically no known illicit trade either at the national or international level with the " synthetics " although a few instances of diversion from legal manufacture are known. It is an economic dictum that supply will meet demand if the profit motive is adequate. It would be difficult to visualize a greater profit on " synthetics " than now exists for the natural products. A controlled supply is essential to high profit. Even to a scientist it is difficult to believe that international dealers in narcotics could glut the market with " cheap " synthetics.

Narcotic thieves always prefer the natural products when given a choice. Not a single instance is known in the United States where a large scale theft of synthetics occurred when the burglarized vaults contained both natural and synthetic drugs. The thieves invariably stole the natural products and left the synthetics behind.

5. " *The rise in the addiction to ' synthetic ' drugs brought about a corresponding increase in illicit traffic in natural narcotics* " (E/CN.7/SR.276, p. 7).

This is a statement by the representative of France in supporting the original resolution and made without supporting evidence. It is not in accord with the American experience and seems most unlikely on theoretical grounds. Certainly in the United States there is no evidence whatever that addiction to synthetic drugs has had any tendency to increase addiction to the natural narcotics.

Certain other facts must be considered before any sound conclusion can be drawn regarding policies for international control. The argument was offered by the proponents of the original resolution that the type of prohibitions suggested were not intended to, nor would they, interfere with scientific advances in this field. Such an argument is neither scientifically nor medically realistic. The final test of hazard of a new analgesic agent, whether it relates to its capacity to induce euphoria, rapid tolerance, physical dependence, and the other factors which constitute " addiction ", can only be determined in normal man, in fact in many normal men, *under conditions of therapeutic use*. Animal experiments, or small-scale preliminary trial on post-addicts as conducted at Lexington, yield results which, although the best obtainable at the screening level for new compounds, are recognized to be inconclusive.

In the United States, as elsewhere, evaluation of a new narcotic analgesic which is proposed for distribution to the profession follows a certain pattern. First is the determination of " scientific indispensability ". Scientific " indispensability " is based solely upon a favourable advantage/disadvantage ratio on all tests on animals and post-addicts. If such a ratio is significantly greater than unity, the drug may then be given the " medical and social indispensability " test. This test is carried out on a limited scale under actual conditions

of clinical application by persons qualified to make an accurate clinical appraisal of the situation. If a favourable ratio is still obtained, that is, if the therapeutic advantages outweigh its hazards of use, then for all practical purposes this substance could be declared " indispensable to the public health " and actually is by tacit understanding.

Under the resolution as initially proposed the final clinical test to determine " medical and social indispensability " could be effectively outlawed and superior therapeutic agents might never be discovered.

There are other reasons which can be considered from a scientific point of view which bear upon the original resolution. The type of medical practice regarding administration of narcotics differs widely in the several states, ranging from elaborate hospitalization under constant supervision to hand-to-hand transfer of narcotics to ambulatory patients. The same situation applies to laws and their enforcement. The inference is that it is not possible to strike an average for clinical practice or of laws governing its control, thereby precluding the uniform standards required of international protocol.

Trends in world events can so profoundly influence the individual and mass psychology of a nation that unpredictable crises may arise which have no counterpart at the world level, for example, there is the amphetamine situation in Japan. To use such an isolated instance as the basis of international protocol against amphetamine would hardly constitute proper perspective. Fortunately, good perspective has been retained in the logical decision of the Expert Committee on Drugs Liable to Produce Addiction of WHO to continue study of this problem but to make no recommendation for general international control.

In summary, the conclusion is inescapable that the great preponderance of evidence favours the view that there is no *scientific* basis for either legislation or protocol which would create an artificial class distinction based upon chemical origin which can serve satisfactorily as a foundation for retaining the natural products and prohibiting the use of the " synthetics ".

On the contrary, the scientific and medical advances in the synthetic narcotic field have been so rapid that even to-day *very few natural products are indispensable to the public health.* The evidence in favour of the " synthetics " is so impressive when subjected to comparative analysis that the author is tempted to predict that the day is not far distant when the Commission will be confronted with resolutions which would propose to abolish forever the *cultivation and production of all " horticulturally derived " narcotics.*

To this observer, a statesmanlike and logical approach to international control appears in the statement of the Chairman of the Commission regarding the opium problem. It is to be hoped that his philosophy may serve equally well as a basis for further deliberations. " The decision must be realistic enough to be applicable and at the same time a step forward."

A brief digest on the administrative practice of the monopoly system for opium in India

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I. *Introduction*

It is the object of this article to present the working of the Narcotics Department in India, so far as the " district procedure " is concerned, in a form intelligible to those who have no technical acquaintance with the Indian Government's departmental procedure.

The Narcotics Commissioner of the Government of India who has also been appointed as Opium Agent to superintend the cultivation and manufacture of opium under the Opium Act, 1857 (XIII of 1857), is the Head of the Narcotics Department, which is a subordinate office of the Ministry of Finance (Revenue Division). He is assisted by the Deputy Collector (Opium) and the Assistant Collector (Opium) both of whom have also been appointed as Deputy Opium Agents for the states of (i) Uttar Pradesh and (ii) Madhya Bharat and Rajasthan respectively. In addition to these officers there are a number of District Opium Officers who are responsible for the licensing of the cultivators, supervision over the poppy crop and collection of opium when it is ready.

II. "*Settlements*"—*licensing system*

For over a hundred and fifty years opium cultivation and manufacture have remained a state monopoly, and today the Government of India has full control over poppy cultivation and the wholesale trade in opium. According to the requirements of the country for quasi-medical and medicinal purposes, and for export, the Government of India determines the area to be utilized for poppy cultivation during each year.

On receipt of orders from the Government of India, the Narcotics Commissioner communicates to all the opium officers general instructions in regard to the extension, restriction, or maintenance of the area under cultivation as compared with the previous year. Before commencing the task of licensing individual cultivators, every district opium officer collects information and statistics regaiding all the licensees within his charge, carefully weighs therrelative merits of the licensees, and prepares a forecast of the engagements to be entered into, using as a basis the orders issued by the Narcotics Commissioner. In determining whether the area of a cultivator should be increased or decreased, the officer is guided by the data of previous years, by the notes recorded in the licence register, and by his personal knowledge of local conditions. The engagements are perfectly voluntary on the part of cultivators and the officers are strictly guided on this point by the existing law on the subject (Sections 8 and 9, Act XIII of 1857).

The operations of the year begin with the annual " settlements ", which means, allotment of a specific area to each cultivator who has qualified for a licence. The language of Act XIII of 1857 implies that engagements be entered into by the officers of the Government with each individual cultivator who in turn receives an advance directly from the licensing officer. These advances are given in the presence of a kind of a foreman who is known by the name of *lambardar*.

The manner in which settlements are made, and advances given, is described in the following paragraphs.

The settlements are conducted under an elaborate system of rules, maps and registers introduced in 1877–78. Such maps, registers and inspection books are of great service to the officers engaged in conducting settlements. After preliminaries, each cultivator appears before the officer-in-charge and puts in his request for the area he desires to use for poppy cultivation. The officer examines the history of the past three years of the cultivator from the licence registers and if the average yield etc. in the past years is found satisfactory, he is allowed to be licensed subject to his further qualifying according to the licensing principles. After the cultivators of a particular village have been approved, the name of each such cultivator together with the area allotted to him, is entered into a prescribed form called the " miniature licence ", which is issued to each individual cultivator. The miniature licence contains full particulars of the area allotted, area actually put under cultivation, quantity of opium produced, class of opium and the price paid.

There is another form called the " joint licence ", which contains the names of all the licensees and the total licensed area in a particular village. This joint licence is kept by the *lambardar*, who produces it at the time of weighments for entering the weight of opium delivered by each cultivator and the price payable by the government for the same.

At the time of issue of the two licences a joint *kabuliyat* (agreement) is made with each cultivator of a particular village, and a cash advance paid to him in proportion to the area for which the licence is given. This agreement binds the cultivator to abide by the departmental rules and instructions regarding poppy cultivation. The *lambardar* of the village is asked to execute a security bond for effective supervision and control over the cultivators in his village. The surety who executes the security bond is generally another *lambardar* but two *lambardars* are not allowed to stand sureties for each other.

With a view to eliminating careless cultivators, and those who may be tempted to indulge in malpractices, the Govern-

ment of India has laid down licensing principles for the guidance of the district opium officers. The licensing principles to be observed in 1955–56 as approved by the Government of India are set out in the Appendix.

Other points that need careful attention during the settlements are :

(i) that the *lambardars* are reliable men who enjoy the confidence of the cultivators;
(ii) that the men coming forward for the settlement are good cultivators and can be trusted with advances;
(iii) that the lands to be used for poppy cultivation are free from dispute and in the actual possession of the cultivators;
(iv) that the proposed cultivation is conveniently situated for supervision;
(v) that in restricting cultivation to the authorized limits, preference is given to licensees who have previously shown good results; and
(vi) that when an increase of cultivation is desired, extension is judiciously made in areas previously known from the records to be good.

III. Lambardar *and his responsibilities*

The *lambardar* is usually one of the substantial cultivators of the village. He regards himself and is regarded by others as a kind of subordinate official of the Government. He takes some pride in being called a *lambardar*. Besides making profit from his personal poppy cultivation, he is remunerated by the Government in the form of commission which is paid to him on the opium yield of the licensees assigned to him. *Lambardars* are held responsible for the utilization of suitable lands, for distributing advances to cultivators, for the proper cultivation of the lands by the licensees and for the collection of outstanding balances, if any. The *lambardars* are also responsible for the identification of the cultivators in their jurisdiction, and for the advances and miniature licences of the absentee cultivators, if any. They are also required to identify personally the field of each cultivator, and help the staff in the measurement of the fields. It is also the *lambardar's* duty to assemble all his cultivators in the village with their opium for preliminary weighment and to bring them to the weighment centre on the appointed date for classification, weighment of opium and for payment to the cultivators. These *lambardars* are also required to keep a keen eye on their cultivators, and on any suspicious characters in their villages, and to bring immediately to the notice of the opium officer, for necessary action, any information indicating the possibility of loss of opium from his village.

IV. *Cadastral surveys*

The settlements are usually completed by the end of September each year, and the cultivators begin to prepare their lands for the crop soon afterwards. The next step is to measure the cultivated area. The preliminary measurement (*lathabandi*) of the fields of each cultivator is done by the *ziledar*, a subordinate official of the field staff. The measurements are made with the aid of a pole 8 ft. 3 in. ($5\frac{1}{2}$ cubits) long of which 20 × 20 make an opium *bigha* of 3,025 sq. yds., equal to five-eighths of an acre. The *ziledar*, after measurement, demarcates each field according to the area actually licensed. After the seeds have sprouted and the seedlings are visible the *kothi moharrirs*, who are next higher in rank to *ziledars*, carry out the final (*pucca*) measurements.

Particular care is taken by the measuring staff that unsown and unprepared lands are not measured, on the promise of being sown later. *Moharrirs* and *ziledars* (field staff) are also responsible for ensuring that no plot, however small, sown with poppy within the area of the villages included in their circles or beats escapes notice, and that any illicit cultivation discovered is brought promptly to the notice of the officer in charge with a view to punishing the offender.

The district opium officer and the *gumashta*, who control the field staff, next make their tours. The tours of these officers mostly take place during the cold weather when, while in the interior, they have to camp out in tents. During these tours, the village inspection books are written up, and the state of the crop is noted. If necessary, enquiries are made whether the crop could be increased, whether it is desirable to increase it, what character the *lambardar* bears in the village, and whether the cultivators have any cause of complaint against him. Inquiries may also be made as to whether the cultivators engaged are honest, or whether some of them need to be removed in the following season because of any tendency towards clandestine sale of any part of their produce. The *gumashta* and the district opium officer also test-check departmental measurements to the extent of the percentage prescribed under the rules. Such test measurements are made with a view to checking the work of the field staff. Test measurements are made on the beat of every *ziledar* and are continued as long as they can be conducted without injury to the crop.

Other points which require the particular attention of the district opium officer on tour are :

(i) the prospects of the season, the state of the weather, and the condition of the crop;
(ii) the sufficiency or otherwise of irrigation;
(iii) the action taken in connexion with the cultivators to whom and villages in which the cultivation of poppy has been prohibited.

In fact, during this tour, the district opium officer acquaints himself thoroughly with the conditions prevailing in the opium-growing villages with a view to tightening the preventive measures in the suspected villages and for the suspected cultivators at the time of, and after, the harvest.

V. *Estimation of produce*

It is a matter of extreme importance that a trustworthy and reasonably accurate estimation of the yield of each cultivator's crop should be made. To make such an estimate is neither impossible nor even very difficult. A careful inspection of the village fields by honest and zealous government officials affords material for an estimate which would leave little margin for the cultivator to withhold any part of the produce. An efficient and experienced staff of field officers is able to estimate with fair accuracy the total yield of opium in the 20 or 25 villages of their beats.

As the period for the maturity of the poppy capsules approaches, the entire field staff goes out to the poppy-growing villages. They inspect the field of each cultivator from different angles. In order to estimate the yield of the field a number of factors like the height and vigour of the plant,

condition of the stems and capsules, nature of the soil of that particular village, and the variety of poppy seed used, are taken into consideration. Experienced officials take the sum total of all these factors and determine with considerable accuracy the quantity of opium that should be expected from the field. This estimate is noted down then and there in a register known as the " field book ". By this method, the total quantity of opium that should be expected from the entire poppy cultivation is also calculated.

VI. *Preliminary weighments*

The cultivators must necessarily be permitted to keep their produce in their houses from the time of the harvest until it is weighed and purchased by the government. This is the crucial period when smugglers are active. In order to check the clandestine sale of a part of the produce by dishonest cultivators, " preliminary " weighments have been introduced and have proved very beneficial. During the lancing and collection period, the field staff is also continuously on the move. As soon as any village completes the harvest, the opium of each cultivator of that village is weighed at his house at the earliest possible date, the object being that once the actual produce of each cultivator is known and weighed, the grower, even if he is so inclined, cannot illegally sell any quantity of opium out of his produce. The opium of all the cultivators is thus weighed within a week or ten days of the completion of the harvest.

VII. " *District weighments* "—*purchase of opium from cultivators*

Without going into the details of the weighment procedure which has been perfected with experience down to the minutest detail, with checks and counter-checks at every stage, it is proposed to describe here briefly how the cultivators are paid for the opium that is produced by them.

April and the first half of May is the period during which the process of receiving crude opium from the cultivators, testing and weighing the drug, paying for the quantity delivered, and forwarding the opium to the Ghazipur factory is in full swing.

In determining the date for commencement of weighments the officers of the department are guided by the general state of the drug, and the speed of the process of inspissation. If the season is dry, with westerly winds, the consistence of opium rises rapidly; if damp weather and easterly winds prevail, the weighments are deferred for a few days in order to give the cultivators time to inspissate their opium properly and to raise it to the required consistence. When the date for the commencement of weighment has been fixed, the programme is so arranged that groups of cultivators according to their licences are collected at a time, the number in each group being so fixed as to keep the scales fully employed. The summons are then served on the *lambardars* to appear along with the licensees in their charge on the prescribed dates.

All the licensees usually arrive a day earlier than the date for which they have been summoned, and the *ziledars* arrange the pots and plates in which they have collected their opium, by cultivator and by licence. The pots and plates are also numbered according to the number of the cultivator as it appears in the joint licence. Early next morning the classification and weighments of the opium brought by the cultivators are examined personally by the district opium officer who judges its purity and moisture content, i.e. consistence. As each plate is produced by the cultivator before the district opium officer he turns over the opium with his hand, examines it for impurities and he is so trained that just by feeling with his hand, he is able to decide the class to which opium in a particular pot or plate belongs. All payments to the cultivators are made in terms of 70° opium (70° opium means an opium with 70% solid matter, the remaining 30% being moisture). The opium is classified into the following categories :

Class	*Consistence*
XXX	79, 80, 81 and above
XX	76, 77, 78
X	73, 74, 75
I	70, 71, 72
II	67, 68, 69
III	64, 65, 66

and so on down to Class VII.

If during the *parakh* (hand testing) it is suspected that the opium has been adulterated, a small quantity of it is spread with the finger in a thin film on a white glass slide and held up against the light to see if impurities like sand and earth, etc., are present. Thereafter, it is also tested for sugar and molasses by the Fehling's solution method, for tannin by the iron sulphate method and for gum, etc. by using rectified spirit. To avoid any chances of the opium being adulterated by well-pulverised items like starch, all plates of opium are subjected to the iodine test. The contents of all these suspected pots and plates are kept separately and consigned to the opium factory at Ghazipur for proper chemical examination by the chemists there. No payment for such opium is made to the cultivators at the time of weighments but subsequently if it is found that the opium was free from adulterants, correct and full payment is made to the cultivators, while if it is found to be adulterated, it is straightway confiscated and no payment is made to the cultivators. Such cultivators who bring adulterated opium are excluded from the cultivation of the opium poppy in the future and are also proscribed for poppy cultivation in future.

The classification of each individual pot or plate of opium is simultaneously recorded in the miniature and the joint licences. It is also recorded in a classification sheet, which indicates, at a glance, the number of pots or plates of various classes received from a particular village. After the opium of a particular village has been examined and classified by the officer and the classification and the number of pots or plates checked from the classification sheet, the opium plates are taken to the scales for weighment. The opium of each individual cultivator is weighed separately and stored class-wise in double bags—the inner one being of canvas and the outer of jute sacking. Opium of low consistence, viz., less than 64°, is stored in earthen jars instead of canvas bags.

As soon as a quantity of one maund of opium has been put into a bag or jar, the same is closed and passed on to the test scale. If the gross weight is found correct, the bag or jar is closed and properly sealed. In case any difference in weight is noticed, all the relevant weighment records of that particular bag or jar are examined personally by the district opium officer.

The weight of opium of each individual cultivator is recorded in the joint licence, miniature licence as well as in the " weighment register ". Simultaneously, the price fixed by the government for the different classes of opium is also

calculated and entered in all the above mentioned records against the names of individual cultivators. After these entries and calculations are thoroughly checked, the cultivators are called before the district opium officers to receive payment.

During the time of weighments, payment is made to cultivators in whole rupees only. The balance is paid after about 2 months at the time of next settlements by which time the opium has been examined at the Government Opium Factory and price per seer fixed according to the actual consistence as determined in the opium factory laboratory.

The Government of India fixes the price of opium to be paid to opium cultivators per seer at 70° consistence. This means that cultivators who deliver opium of low consistence get a lower rate than those whose opium is of higher consistence.

All the opium received by a district opium officer from the opium cultivators is despatched by rail or motor truck, at convenient intervals, to the government opium factory at Ghazipur. Each such consignment is always escorted by an armed guard provided by the government opium factory or the local police authorities.

Appendix

LICENSING PRINCIPLES TO BE OBSERVED IN THE 1955-56 SEASON AS APPROVED BY THE GOVERNMENT OF INDIA

1. Poppy shall not ordinarily be planted in any *tehsil*, *pargana* (administrative units) or village in which it was not grown during the 1954-55 season.

2. No cultivator who did not hold a licence during 1954-55 shall ordinarily be licensed during 1955-56.

3. Cultivators who deliberately planted poppy during the 1954-55 season

(i) in holdings not exceeding 1 *bigha*, an excess area of 2 *biswas* or more; and

(ii) in bigger holdings an excess area of 10 per cent or more over the allotted area

will be excluded from cultivation for the 1955-56 season.

4. Cultivators who had resorted to illicit cultivation or were implicated in an offence under the Opium Laws or against whom there was evidence (such as mention of their names in the private records and accounts of a smuggler who has been arrested) showing collusion with persons engaged in the illicit traffic, or who had flouted the departmental instructions such as those relating to the surrendering of the opium pots etc., shall *not* be eligible for a licence.

5. The average produce per *bigha* is the principal criterion for grant of a licence. To determine the eligibility of a cultivator, the average produce in any of the three years preceding, viz. 1952-53, 1953-54 and 1954-55, will be considered, i.e. a cultivator to become eligible for a licence must have secured the minimum prescribed yield (for individual) per *bigha* fixed for his *tehsil* in one at least of the three preceding years.

6. The minimum yield as contemplated in item 5 above shall be

(i) *In Madhya Bharat and Rajasthan :* 5 seers per standard *bigha* ($^5/_8$ of an acre) for all cultivators in all *tehsils* and *parganas* except the *parganas* of Agar and Susner in Ratlam district (Madhya Bharat), and Dag and Gangdhar *tehsils* in Jhalawar district (Rajasthan). In the Agar and Susner *parganas* and the Dag and Gangdhar *tehsils*, the qualifying yield for the individual cultivators shall be 4 seers to the *bigha*.

(ii) *In Uttar Pradesh :* 5 seers per standard *bigha* ($^5/_8$ of an acre) for all cultivators in Bareilly and Barabanki Opium Circles and 4 seers per standard *bigha* for all cultivators in Shahajahanpur and Faizabad Circles.

7. If during the 1954-55 season the average yield of a village falls below 3 seers to the *bigha* in

(i) Agar and Susner or Dag and Gangdhar *tehsils* in Madhya Bharat and Rajasthan, or

(ii) Shahajahanpur and Faizabad Circles of Uttar Pradesh, such villages will not receive licences. Similarly, if the average yield of a village in any other part of Madhya Bharat, Rajasthan or Uttar Pradesh falls below 4 seers, such villages will not receive licences.

The manufacture and sale of opium and opium alkaloids at the Ghazipur factory

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The present article deals with the method adopted at the Ghazipur Opium and Alkaloids Factory for the processing of opium for excise and export purposes and the manufacture of opium alkaloids for export and internal consumption.

In Ghazipur (45 miles east of the holy city of Benares) is situated the main Government Factory of India, wherein the bulk of opium is received for processing from the opium producing centres in the States of Uttar Pradesh, Madhya Bharat and Rajasthan. It occupies a position on the high bank of the Ganges between the civil station and the main town, and covers an area of about 25 acres. The present site was selected in the year 1820. From 1789 to 1820 the operations of the factory were carried on, first in an enclosure on the east side of the main town, which was afterwards used as a charitable dispensary (since disposed of by the government), and then in the premises which now form the main part of the Ghazipur Jail. These successive changes of sites were due to the rapid increase in the turnover of the then Opium Agency and the consequent expansion of operations at the factory. An adequate idea of this expansion can be formed from comparison of the turnover, which in 1795 was 1,200 mounds (about 43 tons) and in 1882 over 52,000 mounds (1,850 tons approx.). The factory is fully equipped to manufacture the quality of opium required for quasi-medical purposes in India, or to meet the requirements of pharmaceutical concerns in India and abroad.

The main operations of the factory are : Receipt and storage of opium; manipulation and manufacture of opium for the export market; manufacture of " excise opium "; packing of opium cakes; disposal of contraband opium; manufacture of various opium alkaloids.

Receipt and storage of opium

The new season's opium begins to arrive at the factory by about the second or third week of April. On arrival the consignment is unloaded from the railway wagons or motor trucks and stacked at a place set apart for the purpose under the care and supervision of the sales manager and the import officer.

The import officer, before taking charge of the consignment examines the locks and seals of the wagon, to ascertain that they have not been tampered with during transit (if tampering is suspected, the wagon is opened in the presence of the factory manager). On unlocking the wagon, a survey of the general condition of the bags and jars inside is made by the import officer in the presence of the *ziledar* (representative of the field officer) accompanying the consignment. Any damage noticed by the import officer is recorded and brought to the notice of the factory manager.

The bags and jars are then taken out, one by one, and carried to the import godown. The import officer tallies the number of bags and jars taken out with those entered on the invoice (*chalan* register). The bags and jars are stacked, in accordance with their classification, at a place set apart in the import godown. The consignment number, the number of bags and jars and the name of the opium producing district from which the consignment has been received, are conspicuously marked near the stacking place. When all the bags and jars have been removed from the wagon and transferred to the import godown, the import officer undertakes a thorough search of the inside of the wagon to make sure that no opium in any quantity is left adhering to the sides or floor of the wagon. If opium is so found, it is scraped off, and the wagon thoroughly washed before being pushed out of the factory siding.

The import officer thereafter once again compares the number of bags and jars as entered in the consignment invoice (*chalan* register) with those actually received and stacked in the import godown.

Each consignment as it is received in the import godown is weighed, and any increase or decrease in weight noticed against the weight already recorded in the invoice (*chalan* register) is noted down in a separate register maintained for the purpose. Variations of 1 lb and over are brought to the notice of the manager for checking with the field officers concerned.

After the weighing of the bags and jars, the consignment is laid out, number by number, according to the classification of the field officer for sampling.

Sampling and classification

The samples are drawn by means of a sampling tube, and are placed in tared dishes, separately for each class of bags or jars according to the field classification, and the dishes containing the samples are again weighed to determine the net weight of opium sent to the chemical control section in a locked box.

On receipt of the analytical report from the opium chemist in respect of a particular consignment, the grade, consistence and the morphine content are distinctly marked on each bag and jar, and the consignment transferred from the import godown to the opium stock godown or the inferior opium godown, as the case may be. The assistants in charge of these sections check the number of bags and jars transferred to their charge with the entries made on the assay paper, and thereafter arrange for storage of the opium in separate vats according to the morphine content. Opium in the factory is classified into four grades, namely, A, B1, B2 and B3 according to whether its morphine strength is over 12%, between 11 and 12%, 10 and 11% or between 8 and 10% respectively. All opium admixed with impurities is termed as " inferior " opium and stored and graded as " C " in the inferior opium godown.

Security measures

After the bags and jars have been emptied in the opium stock godowns, the opium adhering to the cloth bags and

jars is scraped off by means of metal scrapers and transferred to the respective vats. The bags and jars are then sent to the inferior opium godown for a thorough wash in large vats filled with water. Similarly, all other containers, baskets, gunny bags etc. are also sent by the import officer direct to the inferior opium godown after scraping, for a thorough wash in the vats in order to ensure that no opium remains adhering to them. These bags, jars and baskets after washing and drying in the sun are again subjected to a thorough search before being allowed to leave the inferior opium godown. The washed bags and gunny covers are returned to the " general stores " for utilization during the next season, and the unserviceable bags and baskets are destroyed by burning in the factory incinerator. The broken pieces of earthen jars are thrown in the mid-stream of the river. These precautions are taken with a view to ensuring that no opium-soaked articles are in any way used for clandestine purposes.

All the opium vats in the opium stock godowns and the inferior opium godowns are provided with vat cards showing the total quantity of opium at 70° and 100° consistence respectively stored in them, the issues made thereafter, and the closing balances on any particular date.

All the vats in the stock godowns are kept covered and locked for security reasons. The doors and windows of the godowns are also provided with iron bars and wire netting. Each day, at the close of the factory, the godowns are double-locked and sealed with lead seals bearing the factory markings, in the presence of the section officers and the sales manager, each retaining the key of one of the two locks. In the morning when the factory reopens, both the officers jointly open the godowns. The factory is guarded day and night by armed guards.

All opium seized in any part of the country, by the police, excise, customs and intelligence officers of the state governments or the central government is ultimately sent to the opium factory at Ghazipur, for disposal. This opium is technically called " contraband opium ", and is stored separately under the charge of the opium stock assistant.

Manufacture of opium

The manufacturing sections obtain their requirements of opium from the stock godown on requisitions which are endorsed by the factory manager. Before supplies are made from any vat, the opium is tested for its consistence and morphine content.

The opium prepared for quasi-medical purposes is called " excise " or " abkari " opium. It is pure opium dried by exposure to the sun until its consistence is raised to 90°. Opium weighing 2 mounds (164 lb approx.) is laid out in open wooden trays for sun-drying and when the consistence is raised to 90°, the opium is stored in the godown and again tested for consistence and purity. Each such lot of opium at 90° consistence spread out in a tray is technically called *dhundhia*. After the receipt of the test report from the opium chemist, the passed *dhundhias* are cut into small blocks weighing about a seer (1 seer = .9331 kg.) or half seer, as the case may be, for caking, and are accurately weighed on the scales. Each weighed piece of opium is then sent to the press to be shaped into cubical cakes stamped with the factory die plates. After leaving the press, the cakes are again test weighed individually and adjusted, if necessary. Thereafter, the cakes pass on to a larger scale where, in the case of seer cakes, thirty cakes and in the case of half-seer cakes, sixty cakes, are collectively weighed to ensure that the weighing has been correct. The cakes collectively weighed are then wrapped in two sheets of butter paper, and tied with cotton tape embossed with the factory markings. The paper wrappers are stamped with secret code letters approved by the factory manager for each day's packing. When the 30 seer cakes or 60 half-seer cakes have been wrapped up, they are again checked on the scale against the total weight of opium *plus* the weight of wrappers and string etc., and if this test weighment is found correct the cakes are packed in chests in the presence of the assistant-in-charge. The cakes are packed in two layers of 30 compartments each, a cake fitting exactly into each compartment. Chests of the denominations of full, half, quarter and one-twelfth containing 60 seers, 30 seers, 15 seers and 5 seers are generally used.

The manufacture of excise opium is limited to the barest requirements of the various states in India for quasi-medical purposes, in consonance with the policy of the Government of India to ban such consumption by 31 March 1959. The supplies for such consumption within the country are, therefore, being progressively reduced at the rate of 10% of the supplies made during 1948-49. The state quotas of excise opium have, therefore, been fixed by the Narcotics Commissioner in accordance with this policy.

At the beginning of each financial year, the Excise Commissioners of the various states in India submit their annual indents for excise opium according to the quota fixed by the Narcotics Commissioner, specifying the various district officers to whom supplies have to be given during the year. Despatches for excise opium to the various states are made accordingly from the factory, and all consignments are invariably despatched by rail, duly insured for the value of the opium. Despatch of excise opium by post is totally prohibited.

The supplies of excise opium to the state governments is made on " no loss no profit " basis; the opium is subjected to an excise duty by the state governments.

Opium for medical use and for export

Medical opium cake or powder is manufactured primarily to meet the requirements of the government medical store depots and other pharmaceutical concerns for purely medical purposes. The supply is regulated under the provisions of the Dangerous Drugs Act and Rules. All supplies are made on the authority of a permit issued under the provisions of the Dangerous Drugs Act so as to prevent misuse.

Raw opium is also processed and supplied to meet the requirements of manufacturers abroad for medical and scientific purposes. The supply is made subject to the receipt of an import certificate issued under the Geneva Convention of 1925 by the Chief Narcotics Officer or any other officer authorized on behalf of the importing country and accepted by the Government of India in the Ministry of Finance (Revenue Division). Export by air is prohibited under the Dangerous Drugs, Import, Export and Transhipment Rules, save with the special permission of the Government of India.

Raw opium exported to foreign countries is manufactured generally in 2 lb cakes, but opium slabs in denominations of 10 lb or 20 lb are also manufactured and supplied if desired by the purchasers. The manufacture of export opium is open to all grades of good opium according to the requirements of the buyers in terms of morphine content. All deals for the

sale of opium to foreign countries are finalised by the Government of India.

Manufacture of opium alkaloids

Opium alkaloids and their salts are also manufactured to meet the internal demands of pharmaceutical chemists, druggists and medical practitioners and the quantity which is found surplus to the home requirements is offered for sale to other countries.

Each lot of opium before issue to the alkaloid section for the extraction of alkaloids is tested for its morphine and codeine content to determine the total potential morphine or codeine present in the lot. The loss sustained at each stage of manufacture is carefully controlled.

The drugs are manufactured at the alkaloid works in the opium factory at Ghazipur, under the control and supervision of eminent chemists and strictly conform to the B.P., B.P.C., U.S.P., and other international standards. The sale of the drugs is regulated under the Dangerous Drugs Act.

All supplies of manufactured drugs to pharmaceutical chemists and druggists etc. are made on the basis of permits issued by the district magistrate or any other officer so empowered by the state governments for the districts in which the firms are located.

OFFICIAL

Résumé of recent developments in the programme of opium research

In the first issue of the *Bulletin*, there was an article on the possibility of using physical and chemical methods to determine the geographical origin of opium seized in the illicit traffic.[1] When that article was written, an international programme of opium research to develop such methods had just begun. Although articles on technical aspects of this research have been published in later issues,[2] there has been till now no summary of the programme's progress. The present brief notice is intended to fill this gap.

The opium research is founded on two resolutions adopted by the Economic and Social Council in 1948 and in 1949.[3] The first invited the governments of opium-producing countries to furnish suitable samples of their opium, and asked all governments having the necessary laboratory facilities and experts to participate in such a programme, while the second empowered the Secretary-General to accept facilities offered to him by the United States Government for use as an opium distribution centre and to enable the Secretariat to carry out original research of its own, as well as to co-ordinate that of the other participants. In 1952, the Council broadened the terms of reference to cover all types of opium, including opium produced illicitly, by urging governments to furnish the laboratory with samples seized from the illicit traffic.[4]

The research has been jointly conducted by about forty scientists[5] coming from approximately twenty countries and by a small unit in the Secretariat of the United Nations, under the general guidance of the United Nations Commission on Narcotic Drugs. The scientific basis of this work is that the physical and chemical characteristics of opium vary in accordance with the region where the poppy plant is grown and harvested for opium. These differences have been studied for a large group of samples of known origin, and the distinctive characteristics of each opium type have been noted.

By 1953 the Council considered that the research had advanced to a point where consideration might be given to the possibility of applying the methods that had been developed on a practical basis. To secure the necessary technical guidance in this matter, the Council asked the Secretary-General to appoint a committee of three experts to evaluate the progress that had been made and to reach conclusions as to whether the methods were ready for practical application in the international sphere.[6]

The Committee, which was composed of Professor Axel Jermstad (Norway), Mr. P. S. Krishnan (India) and Dr. Lyndon F. Small (United States of America), met in March 1954 and concluded that further samples of opium were needed, but did not reach unanimous agreement on the important question of whether the methods were ready for practical application. One member felt that they were not yet sufficiently reliable, whereas his colleagues considered that the time had come for them to be tested on a small-scale, practical basis. All members of the Committee agreed that the Secretariat's part in the programme would be greatly facilitated if more ample laboratory facilities were made available.[7]

Since the Council concluded that further research was necessary, it requested the governments concerned to furnish clearly identified samples of opium from each of their producing districts for several successive harvests, as well as samples of opium produced from illicitly-grown plants or seized from the international illicit traffic.[8] It instructed the Secretary-General to concentrate the laboratory work on further developing the opium research, particularly by increasing the number of analyses. Finally, it referred to the General Assembly the question of the establishment of a United Nations Narcotics Laboratory.[9]

In November 1954, the General Assembly decided that the laboratory should be set up at the Palais des Nations in Geneva in view of the fact that the Division of Narcotic Drugs was being transferred there.[10] The laboratory is now ready for use. Its equipment will enable the Secretariat chemists to carry out regular chemical analyses as well as analyses by paper chromatography and paper electrophoresis. The laboratory also has a dark room and facilities permitting opium ash to be analysed by spectrographic and spectrophotometric methods.

In May 1955 the Commission adopted a resolution[11] in which it reminded governments of their obligations under the 1931 Convention to report the origin of seized drugs, and

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[1] " Determining the Origin of Opium ", Vol. I, No. 1, pp. 14, 19, 42-47.

[2] Vols. III, No. 2 (pp. 7-9, 40-41), IV, No. 1 (pp. 15-25), and V, No. 1 (pp. 8-14).

[3] Resolutions 159 II C (VII) and 246 F (IX).

[4] Resolution 436 F (XIV).

[5] The nature of this work is set forth in the papers they have transmitted issued under the following symbols :

E/CN.7/207, E/CN.7/301; ST/SOA/SER.K/2, 3, 5-7, 10-11, 14-16, 18-20, 23-30, 32, 36-37, 39-40.

[6] Resolution 477 (XV).

[7] The report of the Committee was circulated as document E/CN.7/278.

[8] Opium samples have been received from the governments of the following countries :

China, Denmark, Egypt, France, Greece, Guatemala, Hashemite Kingdom of Jordan, India, Iran, Iraq, Israel, Italy, Japan, Korea, Lebanon, Mexico, Netherlands, Pakistan, Portugal, Thailand, Turkey, United Kingdom, United States of America, and Yugoslavia.

[9] Resolution 548 D (XVIII).

[10] Resolution 834 (IX).

[11] E/2768, Annex B, Resolution I.

recommended that reports on important current seizures of opium in the international illicit traffic submitted by governments under Article 23 of the 1931 Convention should contain a determination of origin based on physical and chemical methods. It invited governments to consider setting up their own facilities to work in conjunction with the United Nations Laboratory with a view to determination of origin by such examination. It also requested governments to transmit samples of this type of seizure to the Secretariat for similar origin determinations, and authorized the Secretary-General to arrange for such work to be done and to report on the results to the governments submitting the samples and to the governments of countries indicated in the reports as countries of origin.

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SCIENTIFIC PUBLICATIONS OF NARCOTIC DRUGS FOR 1955

Introduction

The following bibliography has been prepared by the Secretariat and includes scientific publications on narcotic drugs which appeared during 1955, as well as a few which appeared earlier but could not, for various technical reasons, be included in the preceding lists published in the *Bulletin on Narcotics*. This bibliography makes no claim to be complete, and information regarding books or articles not included in it would be gratefully received by the Division of Narcotic Drugs, European Office of the United Nations, Geneva, Switzerland.

The bibliography has been arranged by subject in the following way :

Part I. General and reference works

Part II. Opium poppy, opium and drugs manufactured therefrom

- A. Opium poppy, opium and opium alkaloids collectively considered
- B. Morphine
- C. Other phenanthrene alkaloids and derivatives of opium
- D. Other drugs and substances derived from the opium poppy

Part III. The coca leaf and cocaine

Part IV. Cannabis and its derivatives

Part V. Synthetic drugs

- A. General works
- B. Pethidine and related compounds
- C. Methadone and related compounds
- D. Morphinan and morphine synthesis

Part VI. Addiction to narcotic drugs

Part VII. Miscellaneous

Under each heading, publications are arranged alphabetically by author. Owing to the nature of the sources available to the Secretariat for preparing this bibliography, several titles are given in translation only. They are preceded by an asterisk.

The bibliography is now prepared for both English and French editions.

Therefore translations in both languages follow those titles which are not in one of the working languages.

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Part. III THE COCA LEAF AND COCAINE

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